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JOURNAL OF EDUCATIONAL RESEARCH

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JOURNAL *of* EDUCATIONAL RESEARCH

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EMPIRICALLY DETERMINED GRADE NORMS AS A FACTOR IN THE EDUCATIONAL MALADJUSTMENT OF THE "AVERAGE" CHILD

III. The Rate of School Progress of Children in the 90-109 I.Q. Group and Some Related Variables

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and
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INTRODUCTION

THAT present grade achievement norms are an important factor in the grade failure of "average" children was the tentative conclusion reached in two previous parts of this research. In these studies it was found that children of 90-109 I.Q. average below the grade placement positions that the entrance age allowed by law plus progress at the rate of a grade a year would give them;[1] and further, it was determined that the difficulty lay, not in late entrance, but in actual non-promotion.[2] It is now proposed to analyze the relationship between rate of school progress and certain variables in order to test further the thesis that present achievement norms are retarding the child of average mental ability.

In adopting the progress index for this study certain shortcomings of that measure need to be mentioned. In the first place, it does not allow for the fact that certain proportions of children might be expected to make slow or fast progress, because they entered school early or late and

[1] Horn, Ellen Alice, and Main, Zilpha. "Empirically Determined Grade Norms as a Factor in the Educational Maladjustment of the 'Average' Child. I. A Critical Evaluation of the Actual Grade Placement of Children in the 90-109 I.Q. Group," *Journal of Educational Research*, XXXI (October, 1937), pp. 81-89.

[2] Main, Zilpha, and Horn, Ellen Alice. "Empirically Determined Grade Norms as a Factor in the Educational Maladjustment of the 'Average' Child. II. An Age-Grade Study of Children in the 90-109 I.Q. Group," *Journal of Educational Research*, XXXI (November, 1937), pp. 161-171.

so had lower or higher mental ages than they would have had otherwise. In the second place, although the progress index avoids the whole question of "age for grade" it does not make the results of progress studies more comparable than those of age-grade reports. To illustrate, a progress index that is based on six grades is different from one that is based on eight; and a progress analysis of a single grade is not to be compared with one covering six or eight grades. Similarly, an index that is obtained during the school year is not the same as one that is taken at the end of the school year. Other differences that partly vitiate comparison of present progress studies include the use of the annual or semi-annual promotion system, the compulsory age limit, entrance age allowed, and in the case of the present study the I.Q. range. In spite of these weaknesses, the rate-of-progress index does give another valuable approach to the problem of how well the school is fitted to the ability of the "average" child.

THE RATE OF SCHOOL PROGRESS OF CHILDREN IN THE 90-109 I.Q. GROUP AS FOUND IN THIS STUDY

Using the same cases that were presented in the earlier age-grade study of the "average" child,[3] it is found that the 414 children of 90-109 I.Q. who were in junior high school have an average progress rate of .936 grades per year through the six elementary grades.

The index for the minor group of 240 "average" children (those in the fourth, fifth, and sixth grades) was computed through the 4B grade. This group has progressed at the rate of .903 grades per year. Since there are comparatively few failures beyond 4B, this rate may be said to indicate that by the time these children have completed the six grades their progress index will be about the same as that for the other group.

A progress index of .936 grades per year of school means that it takes an average of 1.07 years to make a grade and that each child requires on the average .83 terms beyond the allotted six years to complete the work of the first six grades. This does not support the assumption usually made, that a grade of progress per year of school attendance is the normal rate for "average" children. As a matter of fact, only 43 percent of this group of 414 children of average mental ability were able to attain a progress rate of 1.00 or better. As Table I shows, 57 percent of them took from one to five additional terms to complete the work of the six elementary grades.

[3] For the procedures used in obtaining and treating the data, see Main and Horn, *op. cit.*, p. 164.

TABLE I

PERCENTAGES OF PUPILS WHOSE PROGRESS WAS ACCELERATED, NORMAL, AND RETARDED

Progress of Pupils	Rate of Progress	Number of Pupils	Percentage of Pupils
Accelerated 1 term	1.00	9	2.2
Normal	1.00	169	40.8
Retarded 1 term	.92	150	36.2
Retarded 2 terms	.86	61	14.7
Retarded 3 terms	.80	22	5.3
Retarded 4 terms	.75	2	.5
Retarded 5 terms	.71	1	.3
All	.936	414	100.0

DISRUPTED ATTENDANCE ONLY SLIGHTLY RELATED TO NON-PROMOTION OF THE "AVERAGE" CHILD

If excessive absence and change of school should be found to account for the large proportion of non-promotions among "average" children, there would be some grounds for arguing that the achievement norms should not be lowered. Actual data, however, indicate that a relatively small number of non-promotions, 20.4 percent in this case, is immediately related to disruption of attendance. Table II shows that 80 percent of all non-promotions occurred among pupils whose attendance was not disrupted, either through change of school or excessive absence. In fact, it is quite probable that up to 85 percent of the non-promotions were not related to these factors, for the transfers at the "beginning of the term repeated" were more likely due to the non-promotion than vice versa. As might be expected, disrupted attendance is more apt to be a factor

TABLE II

NUMBER OF NON-PROMOTIONS OCCURRING UNDER CERTAIN CONDITIONS OF ATTENDANCE

Attendance Status	Freq. Non-promotions same Gr. One	%	Two	%	All	%
Same school and without excessive absence	294*	80.6	14	63.6	308	79.6
Transferred during term failed	30	8.2	3	13.6	33	8.5
Transferred at beginning of term failed	7	1.9	1	4.6	8	2.1
Transferred at beginning of term repeated	16	4.4	2	9.1	18	4.6
Incomplete term or excessive absence	18	4.9	2	9.1	20	5.2
All	365	100.0	22	100.0	387	100.0

* Includes 8 instances where absence was 30-40 days, but there were 24 instances of 30 days absences in the data on "most days absence and passing." The term in which the 24 absences occurred were equally divided between grades 1-3, and 4-6.

when the same grade is repeated twice than when it is repeated but once. Thus, 36.4 percent of the non-promotions showed disrupted attendance

when the same grade was repeated twice as against 19.4 when the same grade was repeated once.

VARIABLES ASSOCIATED WITH INCREASE IN NUMBER OF NET FAILURES

The variables studied in relation to the number of net failures were: intelligence quotient, number of schools attended, average number of days absent per term, age at entrance to B1, terms attending kindergarten, and greatest number of days absent and yet passing the grade. The data show a consistent and marked tendency for the number of failures to increase with decrease in I.Q., with increase in total number of schools attended, and with an increase in the average total number of days absent. (Table III.) Somewhat less marked but still consistent is the tendency for number of failures to increase with a decrease in age at entrance to B1. The data on number of terms attending kindergarten indicated no trend, but the finding can hardly be of value, since 43 percent of the cases showed no kindergarten experience.

TABLE III

PROGRESS DATA ANALYZED ACCORDING TO NET NUMBER OF NON-PROMOTIONS. 414 PUPILS OF AVERAGE INTELLIGENCE WHOSE RECORDS ARE COMPLETE FOR THE SIX ELEMENTARY GRADES

No. of Non-prom.	Prog. Index	No. of Pupils	Av. IQ	Av. No. of Days Abs. per Term	Av. Total No. Schools Attended	Mos. Av. Age at Enter to B1	Most Days Abs. any Term yet Passing	Av. No. Terms Kgn.
0	1.00	178	103.6	3.93	1.56	73.7	14.8	1.55
1	.92	150	100.6	4.35	1.81	72.9	14.1	1.63
2	.86	61	97.3	4.49	1.94	72.8	14.4	1.23
3	.80	22	95.2	5.51	2.50	71.8	11.2	1.64
4	.75)	3	93.3	6.66	3.33	65.3	11.3	2.00
5	.71)							
Av.	.936		101.1	4.27	1.77	72.7	13.9	1.54

The data on "most days absent and yet passing" show little difference between those with no failure and those with one or two failures, but those with three or more failures have a lower average maximum number of days absent in any term that was not failed. This, again, may not be significant, since the three-or-more-failures so greatly reduce the number of terms being considered.

Some of the figures in Table III are especially interesting. For instance, the I.Q. of those with no failures averages 103.6 and as the number of failures increases from zero to four or five the average I.Q. drops

ten points to 93.3. And conversely, the number of schools attended increases from 1.56 to 3.33. This finding is somewhat unexpected, since transfer was found to have so little *immediate* relation to non-promotion. Certain explanatory considerations deserve mention. In the first place, the increase in the number of schools attended is very gradual until three to four or five non-promotions occur. Secondly, it may be that the effect of changing school is not immediate and direct, but rather may be seen in the child's attitude toward school work. Then, too, there are the cases where change in school is occasioned by non-promotion, the change occurring *after* the non-promotion not before. Similarly, excessive absence does not frequently appear as a possible explanation of specific instances of non-promotion, but there is an evident relation between total average days absent and non-promotion, again indicating that the effect of disrupted school attendance is probably not so much immediate and direct as delayed and indirect. The two months decrease in entrance age between those with no failure and those with three failures may seem a small difference, but it is more than one-third of a semester, and at entrance age this amount is important, especially at this I.Q. level. Entrance age alone explains one term of repetition for the two cases with four failures and three terms of repetition for the child who had five non-promotions.

VARIABLES RELATED TO I.Q.

When the cases were studied by I.Q. groups of five-point spans, it was found that as I.Q. decreased there were slight increases in number of schools attended and in age at entrance, while there was a marked decrease in the number of days that a child might be absent and still be promoted. The relation between I.Q. and net number of non-promotions is most marked of all, the net repeats averaging .40 for those in the 105-109 I.Q. group and increasing to 1.91 for those in the 90-94 I.Q. Similarly,

TABLE IV

PROGRESS DATA ANALYZED ACCORDING TO I.Q. SAME DATA AS TABLE III

IQ	Prog. Index	No. of Pupils	Av. No. Non-Prom.	Av. No. of Days Abs. per Term	Av. Total No. Schools Attended	Mos. Av. Age at Enter to BI	Most Days Abs. any Term yet Passing	Av. No. Terms Kgn.	% with Net Pro. 1.00 or Better
90-94	.86	57	1.91	4.44	1.91	73.8	11.6	1.46	5.3
95-99	.92	107	.99	4.07	1.79	73.4	13.9	1.47	33.6
100-104	.94	111	.73	4.22	1.76	72.8	14.3	1.58	43.2
105-109	.97	139	.40	4.38	1.70	72.9	15.6	1.59	69.4

the proportion in each I.Q. group who had a progress rate of 1.00 or better decreased from 69.4 percent in the 105-109 I.Q. group to 5.3 percent in the 90-94 I.Q. group. Complete data are given in Table IV.

SEX DIFFERENCES

Both arrangements of data, that is, by number of non-promotions and by I.Q. were analyzed according to sex. The following sex differences are to be noted. While the number of non-promotions increases as I.Q. decreases for both boys and girls, the effect is consistently greater for boys than for girls. The "most days absent and yet passing" for girls is little affected by I.Q., except that those of 105-109 I.Q. can have a considerably longer absence, but the number of days that the "average" boys could be absent decreases continually with decrease in I.Q. The number of schools attended bears little or no relation to I.Q. as far as the girls are concerned, but the lower the I.Q. of the boys the more apt they are to attend a greater number of schools. In short, it appears that the maladjustment of "average" boys is more affected by I.Q. and disruption of school attendance than is the case with girls of average mental ability.

PROGRESS AFFECTED BY GRADE

Grade location appears to be another factor affecting the school progress of the "average" child. The chances of his having to repeat B1 are one in five, while there is only one chance in fifty that he will have to repeat A6. Table V shows that in the first three terms there were 185 pupils who repeated these grades one or more times. In other words, these three terms cover 49 percent of the total number of non-promotions experienced by this group of "average" children. This should not be interpreted to mean that if the norms of achievement for these three terms were made easier the "average" child would progress as he should, for by failing in these early terms he has, of course, increased his mental age and hence his chances of being promoted regularly through the other grades.

Repetition of a grade is not the only indication of educational maladjustment. Many of these children spent one or more terms in the adjustment room, and when these periods of educational maladjustment are added to the number of terms repeated a truer picture of the educational progress of children of average mental endowment is obtained. See Table V. The fact that there were 45 pupil-terms skipped by this group of children can hardly be considered as indicating less educational mal-

adjustment, since four-fifths of these skips were merely make-ups. While these, of course, lessened the net number of repeats, the fact remains that every term repeated or spent in an adjustment room indicates inability to come up to and maintain the achievement standard that has been set. As would be expected, five of the nine who actually progressed at a rate in excess of 1.00 grades per year were in the 105-109 I.Q. group, three were in the 100-104 I.Q. group, and only one in the next lower I.Q group.

TABLE V

PROGRESS BY GRADE (SAME DATA AS TABLE III)

Grade	No. Skipping	No. Passing	No. Repeating	% Repeating	No. in Adj. Room	No. Repeating & in Adj. Room	% Repeating & in Adj. Room
B1	—	333	81	19.6	—	81	19.6
A1	5	359	50	12.1	—	50	12.1
B2	4	356	54	13.0	1	55	13.3
A2	4	378	32	7.7	1	33	8.0
B3	7	375	32	7.7	5	37	8.9
A3	4	398	12	2.9	10	22	5.3
B4	5	381	28	6.8	7	35	8.4
A4	6	386	22	5.3	10	32	7.7
B5	—	389	25	6.0	14	39	9.4
A5	2	395	17	4.1	10	27	6.5
B6	4	397	13	3.1	9	22	5.3
A6	4	400	10	2.4	10	20	4.8
All	45	4570	376	7.6	77	453	9.1

SUMMARY AND CONCLUSIONS

The findings in the present study may be summarized as follows:

1. A group of 414 "average" children (I.Q. 90-109) has a progress index of .936 for the six elementary grades.

2. This rate was corroborated by one of .906 through Grade B4 for a group of like intelligence.

3. A progress index of .936 indicates that the "average" child is not making a grade a year. In fact, this rate means that an average of .83 extra terms is required to complete the work of the six elementary grades.

4. By actual count only 43 percent of these children progressed at the rate of a grade a year, the other 57 percent requiring from one to five extra semesters.

5. The variable most closely associated with non-promotion appears to be I.Q.

   a. As the number of failures increased from 0 to 4-5 the average I.Q. decreased from 103.6 to 93.4.

b. As I.Q. decreased (in steps of 5 points) the average number of net failures increased from .40 per pupil in the 105-109 I.Q. group to 1.91 per pupil in the 90-94 I.Q. group.

c. As I.Q. decreased the number whose progress rate was 1.00 or better decreased from 69.4 percent of those in the 105-109 I.Q. group to 5.3 percent of those in the 90-94 I.Q. group.

6. Disrupted attendance caused either by change of school or excess absence occurred at most in the case of only 20 percent of the non-promotions.

7. There is a tendency for increase in net number of failures to be accompanied by an increase in the *total* number of schools attended and also by an increase in the average total number of days absent.

8. From these two findings (statements 6 and 7) it appears that change of school and excessive absence have little immediate effect on progress but they may have either a direct cumulative effect or an indirect effect through influence on attitude. On the other hand, since approximately 50 percent of the non-promotions occur in the first three terms, it is quite possible that non-promotion increases the number of schools attended and the total absence rather than vice versa.

9. Decrease in age at entrance tends to occur with increase in number of failures.

10. Non-promotion of boys is more closely related to the factors of I.Q., number of total days absent, and number of schools attended than is that of the girls.

11. Forty-nine percent of the instances of non-promotion occurred in the first three terms of school.

CONCLUSION

Since the "average" child, as represented by this group, has a progress rate of but .936, and since only 43 percent had a rate of 1.00 or better, we conclude that the child of average mental ability is not making proper progress. And since only 20 percent of the non-promotions showed any disruption of attendance which might justify the repetition of the work, we conclude that the achievement norms were too difficult. This view is supported by the fact that decrease in I.Q. is closely associated with increase in number of non-promotions, though all in this group are, of course, of average mental ability, I.Q. 90-109.

Likewise, age at entrance and number of non-promotions show a relation, the pupils with the more failures tending to enter school earlier.

though those with 1-3 net failures are well within the age limits for entrance. Further, the average entrance age of those with no failures is 73.7 months, which is a month and a half above the midpoint of the first six months allowed by law. Again, as I.Q. decreases, "the number of days absent and yet passing" also decreases. In short, the "average" child has difficulty, and the lower his mental age the more retarded he becomes. Achievement norms which are based on the ability of the *"average" child who enters within the first six months allowed by law* is the remedy indicated.

SEX DIFFERENCES IN BEGINNING READING IN A PROGRESSIVE SCHOOL[1]

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and

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THIS report presents objective data on sex differences gathered during the school years 1933-1936, inclusive, in a study of reading progress in kindergarten and primary grades in the Horace Mann School of Teachers College, Columbia University, New York. In this investigation a series of mental, reading and letter tests was given to more than 400 children, classified as shown in Table I.

TABLE I

NUMBER OF PUPILS, BY YEARS AND GRADE LEVELS

	1933-34	1934-35	1935-36	Total
4-yr. Kindergarten		16	21	37
5-yr. Kindergarten		54	48	102
Grade I	25	58	59	142
Grade II		55	56	111
Grade III			55	55
Total	25	183	239	447

The pupils of the grades studied were of average or better mental ability, as shown by Stanford Binet tests on file in the office of the director of pupil individual development and guidance. Home backgrounds were on the whole somewhat above average, as indicated by the large percentage of professional parents and others in the upper brackets of income. The general character of the school is progressive in the sense that a rich and varied experience is provided the pupils, under the guidance of teachers of proven ability, who give first concern to the understanding of the nature of each of their pupils. Vital child life interests are of paramount importance in this teacher guidance.

The mental and physical tests and measurements were given or made individually and are indicated by name in Tables III to VII. The reading tests used were the three types of the Gates Primary Reading Tests, the Stanford Achievement Tests, and the Progressive Achievement Tests.

[1] Prepared with the assistance of the U. S. W.P.A., New York City, Projects Numbers 65-97-6172, sub-project 4, and 465-97-3-107, sub-project 4.

They were given as group tests in grades two and three, and in the spring semester of grade one. Type 1 of the Gates Primary Reading Tests, word recognition, was given as an individual test to the kindergarten and beginning grade one groups. The letter tests were adaptations of some of the sub-tests of the Gates Reading Diagnosis Tests. They were given individually to all groups, and consisted of the following:

TABLE II

LETTER TESTS BY GRADES

	Kindergarten	I	II	III
Pronouncing phonetic combinations	x	x	x	x
Giving letter sounds	x	x	x	x
Blending letter sounds	x	x	x	x
Recognizing letter sounds		x	x	x
Naming capital letters	x	x	x	x
Writing capital letters	x	x	x	x
Naming small letters	x	x	x	x
Writing small letters		x	x	x
Writing digits	x	x	x	x

Not all of the tests were given to every pupil, but the great majority of children were given most of them. In the detailed tables of tests by grades the exact numbers of pupils involved in the sex comparisons made are shown.

Tables III to VII give the differences between boys and girls by grade levels. The number of each sex, the means and the standard deviations involved in the computations showing the differences, are given in the tables. In the last two columns are found the critical ratios, in terms of the standard deviations of the differences, and the chances in 100 that either the boys or girls would surpass the other. The minus signs before the critical ratios mean that the differences were in favor of the boys. The plus signs mean that the girls had the greater chances of surpassing the boys. The letters *B* or *G* in the last column indicate which sex had the better chances.

A summary of Tables III to VII is presented in Table VIII. This summary is in terms of the averages of the chances in 100 that boys or girls would surpass the other sex group. For the reading and letter tests, the numbers of different tests which contributed to these averages are shown in parentheses before the averages. The Stanford-Binet test only was used in determining differences in IQ and MA.

From this table it appears that in both the four and five year kinder-

garten groups the chances of one sex being mentally superior to the other were practically even. So were the chances in the letter tests, as indicated by chances very close to 50 in 100 that either would surpass the other. In the one reading test, which was given to the five year group, the chances were 77 in 100 for the boys being superior to the girls, and 23 in 100 that the girls would surpass the boys. This difference is far from reliable, and in view of the facts that but one test was given and that its reliability when used with 5 year old children cannot be considered very high, nothing of significance can be asserted in regard to differences between boys and girls at this level.

TABLE III

SEX DIFFERENCES IN MENTAL, PHYSICAL, READING, LETTER AND OTHER MEASURED ABILITIES
4 YEAR KINDERGARTEN

Measure	Boys			Girls			Critical Ratios	Chances in 100 that Boys or Girls will Surpass the Other
	Number	Mean	S. D.	Number	Mean	S. D.		
Mental								
S.B., MA	11	5.96	.60	6	5.79	.82	—.46	67[G]
S.B., IQ	11	132.70	12.10	6	128.33	21.10	—.46	67[B]
Seguin Formboard								
Best Time	8	45.00	12.20	8	45.00	18.70	.0	50
Mare and Foal Time	8	100.00	40.60	8	85.00	33.80	—.8	79[B]
Physical								
Chron. Age	19	4.5	.26	14	4.47	.22	—.42	65[B]
Weight	19	39.14	4.42	14	38.56	3.66	—.41	65[B]
Height	19	40.78	1.6	14	40.50	1.63	—.50	69[B]
Reversals, Form and Stroke								
Reading and writing, letters, digits and words	8	6.5	4.08	8	6.25	4.62	—.11	54[B]
Letters								
Naming capital								
letters (1934)	8	6.75	9.16	8	8.25	9.66	+.31	62[G]
letters (1935)	19	3.05	3.56	14	2.28	3.44	—.63	74[B]
Naming small								
letters (1934)	8	2.75	4.68	8	4.00	6.08	+.46	67[G]
letters (1935)	19	2.20	2.50	14	2.14	3.32	—.05	52[B]
Writing digits	9	1.47	1.81	14	1.92	3.36	+.45	67[G]

In grade one there was a slight tendency, perhaps, for the girls to surpass the boys in reading and letter abilities. The girls averaged 65 chances in 100 of surpassing the boys in 4 reading tests, while the boys averaged 35 chances in 100 of surpassing the girls. In the 19 letter tests the girls averaged 70 chances in 100 of surpassing the boys; the boys 30 chances in 100 of surpassing the girls. No comparable tendency to superiority of the girls was found in mental age and IQ at this level. In the former measure the chances in 100 of the girls being superior were only

TABLE IV

SEX DIFFERENCES IN MENTAL, PHYSICAL, READING, LETTER AND OTHER MEASURED ABILITIES
5 YEAR KINDERGARTEN

Measure	Boys			Girls			Critical Ratios	Chances in 100 that Boys or Girls will Surpass the Other
	Number	Mean	S. D.	Number	Mean	S. D.		
Mental								
S.B., MA	43	6.54	.78	50	6.55	.77	+.06	53[G]
S.B., IQ	43	123.72	15.25	50	122.40	13.49	—.44	67[B]
Seguin Formboard								
Best Time	23	18.89	10.70	29	17.09	7.0	—.69	76[B]
Mare and Foal Time	23	37.45	51.50	29	43.60	59.50	+.39	65[G]
Physical								
Chron. Age	47	5.31	.24	53	5.36	.30	+1.0	84[G]
Weight	46	45.65	4.90	54	44.51	6.64	—.99	84[B]
Height	46	44.30	1.62	54	44.25	2.14	—.13	56[B]
Reading								
*G.P.R.T.								
Word Recognition								
Spring	41	8.41	13.40	50	6.5	10.10	—.75	77[B]
Reversals	23	9.84	6.48	29	7.38	4.66	—1.48	93[B]
Letters								
Giving Letter Sounds	41	2.82	2.68	52	2.72	2.8	—.18	58[B]
Naming Capital Letters	41	13.94	9.52	52	13.96	8.86	+.01	50[G]
Naming Small Letters	41	9.16	7.40	52	9.50	7.62	+.21	58[G]
Recognizing Consonant Letter Sounds	20	3.4	2.17	25	2.64	1.99	—1.24	89[B]
Recognizing Short Sounds of Vowels	20	1.0	1.0	25	1.04	1.14	+.12	54[G]
Writing Capital Letters	41	11.36	8.18	52	12.15	8.70	+.45	67[G]
Writing Small Letters	41	3.12	4.54	52	3.73	4.38	+.66	74[G]
Writing Digits	43	4.09	2.88	54	3.88	2.90	—.36	64[B]

*Gates Primary Reading Tests.

59, certainly not statistically of much significance. In IQ, moreover, the chances of superiority somewhat favored the boys, as the number of chances in 100 were 79 for them as compared with 21 for the girls. As far as the results in grade one were concerned, then, there seemed to be no striking differences between boys and girls in mental, reading, or letter abilities.

In the second grade the average of chances was 88 in 100 that the girls would be superior in reading; 12 in 100 that the boys would surpass the girls. The differences in IQ and MA in this grade were clearly in favor of the girls, as shown by the numbers 97 and 95, which indicate the chances in 100 that the girls would surpass the boys in these respects. Furthermore, the girls in this grade surpassed the boys in every one of the 14 reading tests, as shown in Table VI. They likewise did better than the boys in 15 out of 17 of the letter ability tests, and had an

TABLE V

Sex Differences in Mental, Physical, Reading, Letter and Other Measured Abilities

Grade I

Measure	Boys Number	Boys Mean	Boys S. D.	Girls Number	Girls Mean	Girls S. D.	Critical Ratios	Chances in 100 that Boys or Girls will Surpass the Other
Mental								
S.B., MA	54	7.77	.81	56	7.80	.62	+.23	59G
S.B., IQ	54	122.96	14.8	56	120.89	12.40	—.79	79B
Seguin Formboard								
Best Time	16	86.25	16.10	15	80.00	10.30	—1.29	90B
Mare and Foal Time	16	43.43	9.75	15	37.33	7.70	—1.94	97B
Physical								
Chron. Age	54	6.32	.29	56	6.47	.32	+3.0	100G
Weight	54	50.92	7.26	56	50.46	7.24	—.33	64B
Height	54	46.92	1.87	56	47.03	1.92	+.31	62G
Reading								
*G.P.R.T.								
Word Recog. (Fall)	24	14.79	15.30	28	11.78	14.00	—.73	77B
Word Recog. (Spring)	54	20.55	14.80	56	20.53	14.75	—.007	50
Sentences	49	18.55	14.80	55	21.60	12.70	+1.12	86G
Paragraphs	54	9.54	7.52	56	14.0	7.54	+3.11	100G
Reversals								
Form and Stroke	30	13.00	5.85	28	9.46	4.85	—2.54	99B
**Letters*								
Naming Capital Letters (1934)	30	23.00	4.60	28	24.92	2.0	+2.10	98G
Naming Small Letters (1934)	30	21.26	5.46	28	23.5	3.36	+1.91	97G
Naming Capital Letters (1935)	24	8.66	3.02	28	9.0	1.54	+.53	71G
Naming Small Letters (1935)	24	8.16	2.76	28	8.7	2.14	+.79	79G
Writing Capital Letters	24	8.25	3.12	28	8.42	2.52	+.21	58G
Writing Small Letters	24	7.08	3.0	28	7.21	2.62	+.29	62G
Writing Digits	24	8.0	2.3	28	7.92	2.64	—.11	54B
Total, Writing Letters and Digits (1934)	30	40.0	11.60	28	48.2	9.35	+2.98	100G
Total, Writing Letters and Digits (1935)	24	22.99	7.77	28	23.03	6.69	+.019	50G
Writing Spoken and Spelled Words	30	8.33	4.70	28	11.5	3.18	+3.04	100G
Giving Phonic Combinations (1934)	30	3.65	6.18	28	9.45	14.53	+1.9	97G
Giving Letter Sounds (1934)	30	8.4	6.52	28	10.5	8.64	+1.04	85G
Giving Phonic Combinations (1935)	24	7.29	5.9	28	5.71	6.35	—.93	83B
Giving Letter Sounds (1935)	24	6.25	3.22	28	5.07	3.04	—1.37	91B
Recognizing Consonant Sounds (1935)	24	6.83	3.2	28	6.28	2.9	—.65	74B
Recognizing Short Sounds of Vowels (1935)	24	2.91	2.5	28	2.85	3.34	—.07	52B
Total, Recognizing Letter Sounds (1934)	30	7.4	4.42	28	9.64	4.18	+2.0	98G
Blending Letter Sounds Heard	30	2.2	1.56	28	3.20	2.02	+2.12	98G
Blending Letters Seen	41	1.85	2.29	42	2.14	2.12	+.61	73G

*Gates Primary Reading Tests.
**Gates Reading Diagnosis Tests and Adaptations.

TABLE VI

Sex Differences in Mental, Physical, Reading, Letter and Other Measured Abilities

Grade II

Measure	Boys Number	Boys Mean	Boys S. D.	Girls Number	Girls Mean	Girls S. D.	Critical Ratios	Chances in 100 that Boys or Girls will Surpass the Other
Mental								
S.B., MA	61	8.69	.83	47	8.94	.76	+1.66	95[G]
S.B., IQ	61	117.86	13.2	47	122.12	10.3	+1.89	97[G]
Physical								
Chron. Age	61	7.41	.37	47	7.36	.40	—.83	80[B]
Weight	61	57.37	7.86	47	56.0	8.12	—.88	82[B]
Height	61	49.72	2.36	47	48.91	2.09	—1.92	97[B]
Reading								
*G.P.R.T.								
Word Recog. (Fall)	47	18.61	17.75	36	25.27	14.05	+1.9	97[G]
Word Recog. (Spring)	28	33.21	12.75	27	35.74	13.55	+.71	76[G]
Sentences (Spring)	28	31.78	11.35	27	36.85	10.70	+1.7	96[G]
Paragraphs (Spring)	28	18.42	6.44	27	19.92	7.56	+.79	79[G]
**Oral Reading								
Errors	47	46.38	39.7	36	26.38	33.1	—2.5	99[B]
Word Pronun.	47	29.95	26.2	36	35.0	20.2	+1.78	96[G]
***S.A.T.								
Paragraph Meaning	61	13.77	13.0	47	20.62	14.25	+2.57	99[G]
Sentences	28	8.75	9.65	27	9.25	8.35	+.2	58[G]
Word Meaning	61	16.72	15.4	47	17.76	15.0	+.35	64[G]
*G.P.R.T.								
Sentences	61	17.21	14.7	47	23.61	14.8	+2.23	99[G]
Paragraphs	47	10.55	9.36	36	16.05	8.08	+2.89	100[G]
****P.A.T.								
Vocabulary	61	35.4	10.45	47	40.53	10.45	+2.55	99[G]
Total, Vocabulary	61	10.81	9.15	47	15.31	8.25	+2.69	100[G]
Reversals								
Form and Stroke	28	8.39	5.65	27	6.85	5.1	—1.06	85[B]
** Reversible Words	47	20.42	29.70	36	16.94	20.80	—.62	73[B]
**Letters*								
Naming Capital Letters (1934)	28	25.14	3.36	27	25.7	.94	+.86	80[G]
Naming Small Letters (1934)	28	24.28	4.16	27	25.77	.88	+1.88	97[G]
Naming Capital Letters (1935)	33	10.0	0	20	9.90	.42	—.33	64[B]
Naming Small Letters (1935)	33	9.87	.68	20	9.80	.86	—.33	64[B]
Writing Capital Letters	33	9.39	.92	20	9.80	.60	+2.05	98[G]
Writing Small Letters	33	8.72	1.54	20	9.6	1.0	+2.58	99[G]
Writing Digits	33	9.72	.92	20	10.0	0	+.62	73[G]
Total, Writing Letters and Digits (1935)	33	27.63	2.31	20	29.1	1.35	+2.94	100[G]
Writing Letters and Digits (1934)	28	50.35	8.85	27	54.25	7.30	+1.79	96[G]
Giving Phonic Comb. (1935)	47	8.17	6.34	36	9.55	5.42	+1.07	86[G]

Measure	Boys Number	Boys Mean	Boys S.D.	Girls Number	Girls Mean	Girls S.D.	Critical Ratios	Chances in 100 that Boys or Girls will Surpass the Other
Giving Letter Sounds (1934)	28	18.75	5.85	27	19.33	4.50	+.41	65[a]
Giving Letter Sounds (1935)	33	6.96	1.66	20	7.5	1.76	+1.12	86[a]
Recog. Consonant Letter Sounds	33	7.69	1.78	20	8.2	1.52	+1.1	86[a]
Recognizing Short Sounds of Vowels	33	2.72	2.4	20	3.2	2.4	+.71	76[a]
Total Recog. Letter Sounds	28	9.82	4.90	27	10.37	3.0	+.5	69[a]
Blending Letter Sounds Heard	57	3.71	2.66	51	4.0	2.3	+.61	73[a]
Blending Letters Seen	61	4.29	3.7	47	4.38	3.66	.12	54[a]

*Gates Primary Reading Tests.
**Gates Reading Diagnosis Tests and Adaptations.
***Stanford Achievement Tests.
****Progressive Achievement Tests.

average of 77 chances in 100 of surpassing them. The superiority of the boys in the two of the 17 letter tests in which they did better than the girls was so slight that it was probably due to mere chance rather than to any real superiority in the boys. As far as the second grade results were concerned, then, it seems that a group of 47 mentally more advanced and brighter girls did somewhat better than a group of 61 less advanced boys in reading and letter tests, but that this superiority was not nearly as great as the girls' superiority in mental maturity and brightness.

In the third grade a different relationship seems to have existed. The chances in 100 that the girls had a higher IQ and a higher MA than the boys were 73 and 84, respectively. While these numbers do not indicate a reliable difference in favor of the girls, they do show a consistent tendency toward their superiority. The averages of the seven reading measures and the eleven letter tests, however, indicate that the chances were practically even that either sex was superior to the other.

The summary facts of these statistical data seem to be:

1. At the 4-year kindergarten and 5-year kindergarten levels no consistently significant differences between boys and girls appeared in mental, reading or letter abilities.
2. At grade one level the girls did slightly better than the boys in reading and letter tests, although they had about the same MA as boys, while the boys were somewhat superior in IQ.
3. At grade two level significant differences indicating the superiority of the girls were apparent in mental, reading, and letter abilities; but

superiority of the girls was greatest in mental abilities.

4. At the third grade level the girls tended somewhat to surpass the boys in mental abilities, but showed no clear superiority in reading or letter abilities.

The conclusion seems to be that neither superior mental abilities alone or in themselves produced superior reading ability, nor did sex do so.

TABLE VII

SEX DIFFERENCES IN MENTAL, PHYSICAL, READING, LETTER AND OTHER MEASURED ABILITIES

GRADE III

Measure	Boys Number	Boys Mean	Boys S. D.	Girls Number	Girls Mean	Girls S. D.	Critical Ratios	Chances in 100 that Boys or Girls will Surpass the Other
Mental								
S.B., MA	25	9.62	1.02	27	9.89	.98	+1.00	84[G]
S.B., IQ	25	117.60	15.50	27	120.00	12.40	+.61	73[G]
Physical								
Chron. Age	25	8.28	.54	27	8.31	.44	+.25	60[G]
Weight	25	62.56	9.18	27	61.40	8.36	—.47	67[B]
Height	25	51.6	2.13	27	51.22	2.16	—.65	74[B]
Reading								
**Oral Reading								
Errors	25	14.80	23.30	27	8.51	12.10	—1.2	88[B]
Word Recognition	25	58.40	30.50	27	55.18	25.00	—.41	65[B]
***S.A.T.								
Par. Meaning	25	39.40	21.60	27	39.62	15.05	+.04	52[G]
Word Meaning	25	42.40	20.0	27	41.48	17.6	—.17	56[B]
****P.A.T.								
Reading Vocabulary	25	59.6	18.35	27	56.66	14.55	—.63	74[B]
Reading Comprehension	25	17.6	9.6	27	16.85	8.5	—.29	62[B]
**Reversible Words	25	14.00	20.70	27	12.59	20.60	—.24	60[B]
Letters								
Naming Capital Letters	25	9.92	.38	27	10.00	.00	+.3	62[G]
Naming Small Letters	25	9.84	.78	27	9.85	.76	+.05	52[G]
Writing Capital Letters	25	9.84	.54	27	9.77	.86	—.38	65[B]
Writing Small Letters	25	9.28	1.24	27	9.62	.96	+1.13	87[G]
Writing Digits	25	18.00	0	27	18.00	0	0	50
Total, Writing Letters and Digits	25	69.00	2.0	27	69.81	1.15	+1.8	96[G]
Giving Phonic Combinations	25	13.76	3.88	27	13.62	3.52	—.13	56[B]
Giving Letter Sounds	25	7.56	2.07	27	7.33	1.68	—.44	67[B]
Recog. Consonant Letter Sounds	25	8.56	2.0	27	8.81	1.56	+.5	69[G]
Recognizing Short Sounds of Vowels	25	3.6	2.7	27	3.33	2.42	—.38	65[B]
Blending Letter Sounds Heard	25	5.28	2.58	27	5.70	2.52	+.6	73[G]
Blending Letter Seen	25	8.48	3.06	27	9.33	2.72	+1.06	85[G]

**Gates Reading Diagnosis Tests and Adaptations.
***Stanford Achievement Tests.
****Progressive Achievement Tests.

TABLE VIII

SUMMARY TABLE

AVERAGES OF CHANCES IN 100 THAT BOYS OR GIRLS WILL SURPASS THE OTHER SEX GROUP

	NP*	I.Q. B	I.Q. G	Mental Age B	Mental Age G	Reading NT**	Reading B	Reading G	Letters NT**	Letters B	Letters G
Kdn. 4 yr.	11 B										
Kdn. 4 yr.	6 G	67	33	33	67	..	..	..	(3)	46	54
Kdn. 5 yr.	43 B										
Kdn. 5 yr.	50 G	67	33	47	53	(1)	77	23	(8)	51	49
I	54 B										
	56 G	79	21	41	59	(4)	35	65	(19)	30	70
II	61 B										
	47 G	3	97	5	95	(14)	12	88	(17)	23	77
III	25 B										
	27 G	27	73	16	84	(7)	54	46	(11)	39	61

* The numbers of pupils indicated are the same numbers from which differences in M.A. and I.Q. were computed. Approximately, but not exactly, the same numbers were used for computing differences in most of the other measures. In certain instances, however, the numbers of pupils were considerably different from the numbers shown in this table. The exact numbers used in each computation of differences are shown in Tables III to VII.

** The numbers of tests used in computing the averages of the chances for each group for differences in reading and letter tests, are shown in parentheses.

Perhaps the differences varied from grade level to grade level because of maturity factors. More probable, it seems, is the supposition that the differences found were related to learning factors. This will be given brief analysis.

It has been shown elsewhere[2] that abilities to name and write letters, to give and recognize sounds of letters, and to give phonetic combinations, were closely associated with progress in reading, and that their functional learning produced progress in reading,[3] for the children of this study.

Evidence that learning the elements of the mechanics of reading was associated with success in reading tests is found by examining the tables of differences by tests. In the four- and five-year kindergartens there seemed to be no tendencies for girls to surpass boys in letter abilities, as shown in Tables III and IV. In grade one, however, at which level mental abilities seemed about the same for boys and girls, the girls showed a tendency to surpass boys in reading and in letter tests. Table V shows

[2] Wilson, Frank T., and Flemming, Cecile White. "Correlations of Reading Progress and Certain Other Traits and Characteristics in Grade I," *Journal of Genetic Psychology*, LIII (September, 1938), pp. 33-52.

[3] Wilson, Frank T., and Burke, Agnes. "Reading Readiness in a Progressive School," *Teachers College Record*, XXXVIII (April, 1937), pp. 565-580.

that the difference between girls and boys in paragraph reading in this grade was statistically reliable. In the sentence reading test the chances were 86 in 100 that the girls would surpass the boys.

In the spring test in word recognition, however, there was no significant difference between the boys and the girls, while in the same test given in the fall the chances somewhat favored the boys. In two of the letter abilities—writing words and writing letters and digits (1934)—the chances were 100 out of 100 that the girls would surpass the boys. Furthermore, the girls' chances of surpassing the boys were 98 in 100 in naming capital letters (1934), 97 in 100 in naming small letters, 97 in 100 in giving phonic combinations, 98 in 100 in recognizing letter sounds and 98 in 100 in blending letter sounds heard.

At the second grade level, at which the girls were quite definitely superior to the boys in mental and, on the average, in reading and letter abilities, the same trends as noted for the first grade seemed to exist, namely almost certain statistical superiority of the girls in naming and writing letters, writing words, giving phonic combinations and giving and recognizing letter sounds.

At the third grade level the differences in letter abilities were not as striking as in grades one and two, although the three highest chances in 100—87, 96 and 85—were all in favor of the girls. (See Table VII)

In conclusion, therefore, it would seem that superiority in reading ability tended to be accompanied by superiority in the important letter abilities functioning in the mechanics of reading, rather than with mental superiority or with sex in and of themselves. The girls tended to surpass the boys in these letter abilities as soon as reading progress got well underway, specifically in grade one. The statistical data throw little light upon the question of why girls surpassed the boys in these respects. The answer to this question seems to depend largely upon observation and first-hand knowledge of the learning steps in beginning reading. Do girls tend to give more attention to details, especially form and sound of letters? Are they more responsive to and heedful of teacher guidance, and thus proceed faster in the early stages of reading?

In one respect, there is statistical evidence related to differences in sex tendencies that may bear on the question of the superiority of girls in reading. This evidence lies in the differences between boys and girls in certain errors made in the tests used. There were two such measures: reversal tendencies and oral reading errors. The sex differences in those respects are shown in Table IX.

TABLE IX

DIFFERENCES BETWEEN BOYS AND GIRLS IN ERRORS

	Critical Ratios	Chances in 100 that *B* or *G* would surpass the other	No. of Pupils B	No. of Pupils G
Reversals in reading and writing words, letters and digits				
4 year kindergarten	— .11	54B	8	8
5 year kindergarten	— 1.48	93B	23	29
Grade I	— 2.54	99B	30	28
Grade II	— 1.06	85B	28	27
Oral Reading, errors				
Grade II	— 2.50	99B	47	36
Grade III	— 1.20	88B	25	27
Reversible words				
Grade II	— .62	73B	47	36
Grade III	— .24	60B	25	27

In every instance the boys made more errors than the girls. If the 4-year kindergarten group is omitted, a group in which only 8 boys and 8 girls were tested, and at which level responses on the tests were usually simply nothing at all, it will be observed that the tendency to errors was consistently much more common among boys than girls. The chances in 100 of such a result appearing in these groups ran from 60 to 99. In the measures of reversals in reading and writing words, letters and digits, the chances that the boys would make more than the girls ran from 85 to 99. In oral reading errors the chances were 88 and 99. In the test in reading reversible words—such as *am, saw, top,* etc.—there was much less certainty of boys making more errors than girls, the chances in 100 being 73 and 60.

It seems logical to suppose that ability in reading is related inversely to the tendency to make errors in oral reading. Reversal reading or writing of a letter, digit or word, may or may not be an indication of reading deficiency, however, in the beginning stages of reading. For the learner just started on recognizing or reproducing forms, a reversal error may indicate partial learning, which soon will be perfected into completed learning. For example, to call the letter *b* a *d* in the early stages of reading is an advance beyond not having any recognition of it at all. Or to write the digit 3 to look like an *E* is definitely evidence of some progress beyond no ability to write anything like a 3. The significance of this fact has been indicated elsewhere [4] in a study of relationships

[4] Wilson, Frank T., and Flemming, Cecile White. "Reversals in Reading and Writing," *Journal of Genetic Psychology,* LIII (September, 1938), pp. 3-32.

between reversal tendencies and progress in reading. In this study cited average correlations of .062 and .043, respectively, were obtained in a first grade group between composite scores of reversals resulting from visual and oral presentation of material, and 14 measures of reading ability. On the other hand, the fixation of these reversal responses as habitual ones instead of the fixation of the correct ones, would mean a reading disability of some degree, varying presumably with the relative frequency of the letter or word in reading activities of the child. Evidence of this relationship at a higher stage of reading appeared in correlations between reversals and reading ability in a second grade. Six coefficients ranged from .44 to .61 as compared with the very nearly zero correlations in grade one, given above.

With this reasoning as a basis it seems possible to interpret the constant tendency of boys to make reversals more frequently than girls in the lower and higher grade levels of reading progress covered in this study. In the kindergarten and grade I the higher incidence of reversals among boys as compared with girls, would be consistent with the nearly zero correlations pointed out above. In the data of this report, as shown in Tables IV and V, there was no clear difference between boys and girls in reading achievement at these two levels. In Grade II, however, it seems logical to suppose that reversal responses had reached the stage of habitual, rather than learning-in-process-of-perfecting responses. At that level the greater tendency of boys to make reversals might definitely interfere with their further progress in learning to read. Table VI shows that their reading abilities were consistently below that of the girls.

This analysis of errors points to the conclusion that the greater tendency of boys to make errors in learning letter and word forms, may explain to a considerable extent the apparent superiority of the girls in progressing in learning to read in grades one and two. It does not, however, throw much light on why the girls made fewer of these errors, or why they corrected them sooner in the early stages of reading progress.

It would seem probable that the reasons for more rapid progress by girls are related to learning interests and dispositions, rather than to more subtle sex differences, such as mental qualities characteristic of femininity. Perhaps the interests and dispositions of girls making them more favorably inclined to learning, are in part to be explained by their greater physiological maturity, which is an established significant difference at the ages of primary school children. Perhaps the interests and disposition are explained in part, also, by the greater social maturity of

the girls of these ages, which is commonly alleged to be a fact, and related, it is assumed, to their more advanced physiological maturity. These differences may be the significant explanations for the earlier "readiness" of girls to acquire the complex reading habits of attending persistently to letters and words, and of controlling the larger muscles which bring the smaller eye muscles and the perceptive processes into sustained operation. Less physiologically mature boys would tend to give less constant attention, would be impelled to distracting and interrupting large muscle behavior, and thus would make both slower and less accurate progress under usual reading situations. They would tend to be less responsive to teacher guidance in such situations, so would profit less by it and would rather tend to progress in whatever reading ability they might achieve by the costly trial and error process.

If these conclusions are true to any extent they would suggest that in the beginning stages of learning to read in the progressive school, the teacher must adapt her guidance to quite definitely different physiological needs of children. In a general way this would mean that for boys the teacher must give experiences that are characterized by greater activity and less sustained attention to details than is the case for girls. These differences, however, would not always be found. Some girls would be more active than many boys, and some boys, of course, would be quieter, more amenable to teacher guidance, and more attentive to details than many girls. The teacher must be understanding of individual interests and dispositions and guide learning accordingly in the difficult beginning stages of reading.

THE INFLUENCE OF GENERAL SOCIAL STATUS ON SCHOOL CHILDREN'S BEHAVIOR

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INTRODUCTION

The importance of environment in the life of the individual has been recognized and brought to the foreground by psychologists, sociologists, and educators in recent years. The exact nature of the role of environment, however, is still vague and our knowledge of the subject is very inadequate.

Psychological tests and measures of behavior and personality, while admitting the importance of environment, nevertheless, make little attempt to evaluate the influence of this factor on the adjustment and behavior of the individual. An attempt is made in this article to study the influence of environmental differences on behavior.

PROBLEM

The purpose of this study is to determine whether there are behavior differences in groups of children from different social levels.

THE TESTS

Teachers' ratings on the Haggerty-Olson-Wickman Behavior Rating Schedules (3, 4, 5, 6) were the measures of behavior used in this study. These tests employ trait rating techniques for evaluating the maladjusted behavior of school children. One of them, Schedule A, is a record of specific overt acts of misbehavior. The other, Schedule B, covers a wide variety of personal traits and characteristics, and gives a score which is indicative of problem tendencies.

The ratings were made after the teachers had known each child for a period of at least four months. The Goodenough Drawing of A Man Intelligence Test (2) was given in order to equate the groups and to study the influence of intelligence on the children's behavior scores. As an objective check on the environmental factors, the occupational status of the children's fathers was rated on the Barr Scale (1).

THE SUBJECTS

This study was limited to native born, white, New York City public school children, between the ages of six and twelve years, inclusive, who were in Grades I to VI. The experimental population consisted of 415 boys and girls, who lived in a poor neighborhood. This neighborhood is best characterized by its squalid slum tenements, heavy congestion of population, and its low general social status. Adjoining this section are many factories and various commercial enterprises. The population consists largely of a heterogeneous group of foreign born adults and first generation Americans. Most of the adults of this neighborhood who are working, are employed at unskilled and semi-skilled occupations. The school teachers and administrative officials were unanimous in the opinion that the experimental children came from poor homes that were, on the average, of a low general social status.

The control groups consisted of 448 boys and girls, who came from middle class families. These children lived in a good residential neighborhood. While this neighborhood is heavily populated, it is characterized by clean, modern apartment houses, and adequate park and recreational facilities. With the exception of the neighborhood shopping centers, there is very little commercial activity in this section of New York. Adjoining this neighborhood are other middle class residential sections. The population consists largely of a heterogeneous group of foreign born adults and first generation Americans. Most of the adults of this neighborhood are employed in skilled trades, white collar jobs, own their own small businesses, or are of the professional group. The school teachers and officials were unanimous in the opinion that the children came from a good social status, which could be best described as middle class.

TABLE I

A Comparison of the Personal Data of the Experimental and Control Groups

		Experimental			Control					Critical
	Group	Mean	SD	N	Mean	SD	N	Mdiff	SDdiff	Ratio
Age in Years	Boys	9.31	1.76	215	9.17	1.81	237	.14	.17	.82
	Girls	9.38	1.54	200	9.32	1.74	211	.06	.16	.38
	Total	9.34	1.67	415	9.24	1.75	448	.10	.12	.83
Good-enough Score	Boys	25.26	9.81	160	24.97	9.41	212	.29	.99	.30
	Girls	27.77	7.59	170	27.90	8.77	197	.13	.85	.15
	Total	26.55	8.83	330	26.38	9.10	409	.17	.65	.26
Barr Score	Boys	7.64	2.79	146	10.15	2.54	204	2.51	.29	8.66
	Girls	8.26	2.89	143	10.13	2.24	185	1.87	.29	6.45
	Total	7.94	2.85	289	10.14	2.40	389	2.20	.20	11.00

A comparison of the personal data of the experimental and control groups is given in Table I, in terms of the mean, standard deviation, mean difference, standard error of the difference, and the critical ratio of the mean difference to its standard error.[1] The experimental and control groups consist of a fairly equal number of boys and girls, whose mean chronological age is 9 years. The mean Goodenough intelligence score for the total of each group is 26. The experimental and control children are comparably equated on intelligence, for the mean difference between the groups is extremely small and varies from .13 to .29 years. On the Barr Scale of Occupational Status, mean differences ranging from 1.87 to 2.51 are found. The experimental children's parents receive occupational scores which are significantly lower than those received by the control groups. The critical ratios range from 6.45 to 11, and are indicative of a high degree of statistical reliability.

The personal data reveals that the experimental and control groups are comparably equated in age and intelligence. The experimental groups, however, come from a poorer social level than the control groups. The latter is confirmed by the significantly lower scores that the experimental groups receive on the Barr Scale.

THE RESULTS

The results of the comparison of the experimental and control groups on the Haggerty-Olson-Wickman Behavior Rating Schedules are given in Table II. Separate comparisons are made for boys, girls, and the total boys and girls in each group.

1. *Schedule A, The Behavior Problem Record.*—Schedule A, of the Haggerty-Olson-Wickman Behavior Rating Schedules is designed to locate problem children through a record of overt behavior problems. It consists of a list of 15 behavior problems, which are statistically weighted on the basis of the seriousness and frequency of the problem.

The children of the experimental and control groups receive scores that range from zero, representing the absence of behavior problems, to very high scores, that are indicative of the presence of many serious problems. The mean behavior problem scores for the experimental boys and girls are 28.68 and 21.70 respectively, and for the total experimental group, 25.31. The mean scores for the control boys and girls are 16.75

[1] Throughout this study, a critical ratio of 3 or more is considered to be indicative of a significantly reliable difference between the two groups that are compared.

TABLE II

RESULTS OF THE EXPERIMENTAL AND CONTROL GROUPS ON THE HAGGERTY-OLSON-WICKMAN BAHAVIOR RATING SCHEDULES

Rating Scale	Group	Experimental			Control					Critical Ratio
		Mean	SD	N	Mean	SD	N	M_{diff}	SD_{diff}	
Schedule A	Boys	28.68	27.41	215	16.75	20.26	237	11.93	2.29	5.21
	Girls	21.70	22.54	200	12.57	13.60	211	9.13	1.85	4.94
	Total	25.31	25.40	415	14.78	17.46	448	10.53	1.49	7.07
Schedule B	Boys	81.72	21.22	215	73.34	19.78	237	8.38	1.93	4.34
	Girls	71.57	16.88	200	66.51	16.25	211	5.06	1.63	3.10
	Total	76.83	19.91	415	70.10	18.22	448	6.73	1.30	5.18
Division I	Boys	19.86	6.64	215	17.07	5.77	237	2.79	.58	4.81
	Girls	17.16	6.26	200	15.25	4.72	211	1.91	.55	3.47
	Total	18.56	6.59	415	16.32	5.29	448	2.24	.34	6.59
Division II	Boys	15.75	4.00	215	13.85	3.47	237	1.90	.35	5.43
	Girls	14.11	3.96	200	13.07	2.84	211	1.04	.34	3.06
	Total	14.70	4.03	415	13.48	3.16	448	1.22	.27	4.52
Division III	Boys	24.38	6.36	215	22.96	6.37	237	1.42	.59	2.41
	Girls	22.26	5.76	200	20.91	5.90	211	1.35	.48	2.81
	Total	23.36	6.18	415	21.99	6.16	448	1.37	.42	3.26
Division IV	Boys	23.31	8.20	215	20.64	7.67	237	2.67	.75	3.56
	Girls	19.90	6.12	200	18.50	6.31	211	1.40	.61	2.30
	Total	21.67	7.47	415	19.63	7.05	448	2.04	.49	4.16

and 12.57, respectively, and for the total control group, 14.78. Schedule A differentiates only undesirable behavior and does not give a normal distribution of the complex behavior it attempts to measure. The standard deviations for the various distributions are large and they are as great, or even greater in many instances, than the mean scores. Since 68 percent of the cases of a distribution fall between $\pm$ 1 standard deviation, the middle $\frac{2}{3}$ of the total experimental group receives scores between 0 and 50, while the middle $\frac{2}{3}$ of the total control group scores between 0 and 32.

The mean differences between the experimental and control children are large and range from 9 to 12 points. These differences are statistically significant and reliable, for they are from 5 to 7 times their standard error, as indicated by the high critical ratios. The conclusions from these results indicate that the experimental groups of boys and girls have a higher incidence of undesirable behavior, as measured by the presence and frequency of occurrence of behavior problems.

2. *Schedule B, The Behavior Rating Scale.*—Schedule B of the Haggerty-Olson-Wickman Behavior Rating Schedules consists of a graphic rating scale of 35 personal characteristics which cover a wide variety of behavior. The sum of the weights gives a *problem tendency* score. High scores represent undesirable trait deviations, while low scores are desirable deviations from the typical behavior of a group of children.

The mean problem tendency scores for the experimental groups range from 71 to 81, while those of the control groups are between 66 and 73. The distributions for the various groups overlap. Less skewness is found in the individual distributions than in the Schedule A results, since Schedule B is supposed to give a somewhat better differentiation in the direction of undesirable behavior (5, p. 56). The mean differences between the experimental and control groups are statistically significant, as are indicated by critical ratios of 4.34, 3.10, and 5.18. The results indicate that Schedule B reliably differentiates the experimental and control groups. The children of the experimental groups present more problem tendencies than their controls.

The results of an analysis of the separate divisions of Schedule B are also contained in Table II. These show that on all the divisions of Schedule B, the control groups receive lower and better scores, than the experimental groups. On Division I, Intellectual Traits, and Division II, Physical Traits, the mean scores received by the experimental groups are reliably higher and less desirable than those received by the control groups.

On Division III, Social Traits, the least significant differences reported thus far in this study are found between the experimental and control groups of boys and girls. The control groups receive more favorable scores than the experimental groups. The differences between the means, however, are not completely reliable. When sexes are combined, the reliability of the difference between the central tendencies of the experimental and control groups is increased significantly, and is in favor of the control group. The critical ratio of 3.26 indicates that the total experimental group receives scores that are less favorable than those received by the total control group on Social Traits.

The results on the last section, Division IV, Emotional Traits, again show the superiority of the total control group. Reliable differences are found between the boys of both groups. The mean difference between the girls of the experimental and control groups, however, indicate that the difference, while in the favor of the control girls, is not completely reliable. When the boys and girls are combined, the reliability of the difference between the total experimental and control groups is increased, and on the whole, the control children receive more favorable ratings on Emotional Traits.

3. *Comparison of the Experimental and Control Groups with the Haggerty-Olson-Wickman Norm Groups.*—The groups of this study

were compared with the Haggerty-Olson-Wickman norms (4, pp. 8-10), and the results are given in Table III. The experimental groups receive

TABLE III

COMPARISON OF THE EXPERIMENTAL AND CONTROL GROUPS WITH THE HAGGERTY-OLSON-WICKMAN NORM GROUPS

	Test	Group	M_{diff}	SD_{diff}	Critical Ratio
Comparison of the Experimental Groups with the Haggerty-Olson-Wickman Norms	Schedule A	Boys	8.85	1.95	4.54
		Girls	8.44	1.64	5.15
	Schedule B	Boys	9.32	1.52	6.13
		Girls	5.67	1.27	4.46
Comparison of the Control Groups with the Haggerty-Olson-Wickman Norms	Schedule A	Boys	—3.08*	1.43	2.15
		Girls	— .69*	1.02	.68
	Schedule B	Boys	.94	1.37	.68
		Girls	.61	1.20	.51

* A minus sign in this column is indicative of a mean difference in favor of the control group of this study.

scores on Schedules A and B that are considerably higher and less favorable than those received by the norm groups. The significant differences between the central tendencies indicate that the experimental groups present more behavior problems and problem tendencies. The differences between the control and norm groups are small and not significant. From these results, it can be concluded that the control groups used in this study are very similar in their behavior to the Haggerty norm groups, while the experimental groups show large and unfavorable deviations.

4. *Influence of Sex on Behavior Scores.*—Olson (5, p. 17) reports that boys tend to receive higher and less favorable scores than girls on the Behavior Schedules. An examination of the results of the present study (Table II) also shows this sex difference. In general, the results indicate that the boys of both the experimental and control groups receive higher scores, which are indicative of the presence of more behavior problems and problem tendencies, than are presented by the experimental and control girls.

5. *Correlations Between Behavior Rating Scores and Other Factors.*—The relationships found between the Haggerty Behavior Scores and chronological age, intelligence scores and Barr Scale ratings are given in Table IV. All the correlations are very low and indicate the absence of any significant relationship between these factors. These relationships, while insignificant from the standpoint of individual prediction, show evidence of a tendency for unacceptable behavior to be associated with low intelligence.

While the experimental and control groups differ significantly on the Barr Rating Scale, low and insignificant correlations are found be-

TABLE IV

BEHAVIOR SCORES OF THE EXPERIMENTAL AND CONTROL GROUPS CORRELATED WITH CHRONOLOGICAL AGE, INTELLIGENCE AND BARR RATING

Measures Correlated	Experimental				Control			
	Boys		Girls		Boys		Girls	
	r	PE	r	PE	r	PE	r	PE
Schedule A with:								
Chronological Age	.017	± .048	.082	± .047	.146	± .041	.025	± .048
Intelligence Score	—.080	± .055	—.066	± .055	.086	± .047	.052	± .047
Barr Rating Score	—.045	± .055	—.231	± .055	—.023	± .048	.017	± .048
Schedule B with:								
Chronological Age	—.077	± .047	.060	± .047	—.004	± .043	—.032	± .048
Intelligence Score	—.318	± .043	—.158	± .053	—.033	± .048	—.121	± .047
Barr Rating Score	—.144	± .055	—.250	± .052	—.051	± .048	.022	± .048

tween the Barr and the Haggerty Schedules. Lower occupational levels, however, tend to be accompanied by many behavior problems and high problem tendency scores.

6. *Item Analysis of the Haggerty Behavior Schedules.*—The individual items of the Haggerty scales were analyzed in terms of the significance of the mean differences, in order to find out what situations present the greatest differences between the experimental and control groups. Because of limitation of space, only the items on which a significant difference was found, will be reported in this article.

On Schedule A, both the experimental boys and girls present more behavior problems than the control groups, in regard to disinterest in school work, cheating, marked overactivity, unpopularity with children, and temper outbursts. In addition to these behavior problems, the boys of the experimental group do more imaginative lying and the girls of the experimental group are responsible for more lying and obscene notes, talk, or pictures than their controls.

On the separate divisions of Schedule B, no differences are found between the girls of the experimental and control groups in regard to the intellectual traits of Division I. Two of these traits, carefulness in thinking and interest in things, show no differences between the boys of the experimental and control groups. But, on the other five intellectual traits, the control boys receive ratings that are significantly superior to those received by the experimental boys. The physical traits of Division II show that the boys and girls of the control groups are considered to be stronger than most children. The control boys are also rated as being more energetic and courageous than the boys of the experimental group. On only one of the ten social traits of Division III are there found to be any differences between the experimental and control boys

and girls. The experimental groups receive ratings on social habits that are less favorable than those received by their controls. No differences are found between the girls of both groups in regard to emotional traits of Division IV, but the experimental boys are slightly less persistent, not as cheerful, less self-controlled and more suggestible than their controls.

7. *Reliability and Validity of the Results on Schedule B.*—The reliability of Schedule B was determined by the correlations between the halves of the scale. Uncorrected reliability coefficients are found to vary between .85 and .90 for both the experimental and control groups. When the Spearman-Brown prophecy formula for the entire scale is applied, the correlations for both groups are between .92 and .94. These results are similar to Olson's findings (5, p. 29), and indicate a comparable reliability for the experimental and control groups.

The validity of the results on Schedule B was checked by correlating the scores on this indirect approach to problem tendencies with the behavior problem scores on Schedule A. Uncorrected validity coefficients varying between .56 and .59 are found for the experimental boys and girls, and .65 and .61 for the control boys and girls, respectively. These results are similar to those reported by Olson (5, p. 34) and indicate that the validity of the Schedule B results is equally high for both the experimental and control groups.

SUMMARY AND CONCLUSIONS

The purpose of this study was to determine whether there are behavior differences in groups of children from different social levels. Teachers' ratings on the Haggerty-Olson-Wickman Behavior Rating Schedules were obtained on 415 boys and girls between the ages of 6 and 12 years, who came from poor homes of a low general social status. This experimental group was compared with a control group of 448 children, who came from middle class homes. The experimental and control groups were equated and found to be comparable on age, sex and intelligence. The parents of the control group received significantly higher ratings on the Barr Scale of Occupational Status.

The results on Schedule A, The Behavior Problem Record, indicate that the children from the experimental group have a significantly higher incidence of undesirable behavior, as measured by the presence and frequency of occurrence of behavior problems, than the children of the control group. Similar results are found on Schedule B, The Behavior Rating Scale. The problem tendency scores of the experimental children are

reliably higher and less desirable than those received by the control children. An analysis of the divisions of Schedule B shows that the experimental group receives significantly higher and less favorable ratings on intellectual, physical, social, and emotional traits, than those received by the control group. When the experimental and control groups are compared with the Haggerty-Olson-Wickman norms, the control group is found to be very similar to the norms, while the experimental group shows large and unfavorable deviations.

Decided sex differences are found between boys and girls. The boys of both the experimental and control groups receive scores that indicate the presence of more behavior problems and problem tendencies than are presented by the experimental and control girls.

Low and insignificant correlations for both the experimental and control groups are found between the Behavior Schedules and chronological age, intelligence and the Barr ratings of the parents' occupational status.

The reliability and validity of the results on Schedule B are found to be equally high for both the experimental and control groups, and are comparable with those reported by Olson in the standardization of the scale.

The general implications of the results are that behavior adjustment is closely related to the general social status of the individual. The children who come from good, middle class homes make better and more satisfactory adjustments, while those from a poor general social level show more maladjustment and undesirable personal characteristics.

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THE ECONOMIC STRATIFICATION OF YOUTH AND ITS SOCIAL CONSEQUENCES

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By economic stratification we mean the tendency for the economic conditions of youth 16 to 25 years of age to be determined to a measurable extent by those of their parents. That this is not a completely adequate criterion of stratification is readily admitted. It seems comprehensive enough however to raise some very significant hypotheses relative to the education of youth.

To those who still believe that America is the land of opportunity, that only the ignorant and the lazy are unemployed, that anyone can get a job if he really wants to, that the poorest boy who wants to "climb the ladder" can readily do so, the mention of stratification will sound quite foreign and un-American. But the millions of youth who have struggled throughout this decade to find a place in the economic system, and often a very precarious one at that, reflect a grim reality which no amount of frontier platitudes can dissolve.

Youth studies. Data are now available from studies made or sponsored by the American Youth Commission to show to what extent, if any, social and economic stratification exist among youth 16 to 25 years of age.[1] We shall discuss and analyze certain data from each of the following studies: the Pennsylvania inventory of youth;[2] the Muncie, Indiana, study;[3] and the Maryland survey;[4] and indicate the extent to which they appear to support the hypothesis of economic stratification.

The Pennsylvania Inventory. During 1934, a comprehensive follow-up study was made of Pennsylvania youth who were in the sixth grade in 1926 and in 1928. These youth, whose names were taken from the school rolls of the two years just mentioned, represented 47 of the 67 counties of the State, and totaled slightly over 23,000, the sexes being about equally represented.

[1] The writer is indebted to Dr. Homer P. Rainey, Director of the American Youth Commission, for permission to use hitherto unpublished data.

[2] Updegraff, Harlan. *Inventory of Youth in Pennsylvania.* Washington: American Youth Commission, 1936. Mimeographed.

[3] Fuller, Raymond G. *A Study of Youth Needs and Services in Muncie, Indiana.* Washington: American Youth Commission, 1937. Mimeographed.

[4] Bell, Howard. *Youth Tell Their Story.* Washington: American Council on Education, 1938. The price is $1.50.

Of this number 6,016 gave information relative to the socio-economic status of the home, and the occupation of the father. The former was measured by means of the Chapman-Sims socio-economic scale administered to the youth, while the latter was quantified by means of the Barr scale which was developed in connection with Terman's studies of genius.[5]

The correlation between these two factors, occupation and socio-economic status, is shown by the basic data given in Table I. These data show a marked tendency for high ratings on the Sims scale to be associated with high ratings on the occupational scale, and vice versa. The linear correlation coefficient is 0.63, indicating a strong positive correlation between father's occupation and socio-economic status. The data, however, reveal nothing very new since it is known that occupation correlates quite highly with income, while the latter is the principal determinant of social and economic status. This conclusion must be tempered with the fact that these data are based upon scales which have their limitations; and that of the two the one dealing with occupations is probably the less reliable and useful since it is based upon personal opinion of the intelligence required in a given occupation.

TABLE I

CORRELATION BETWEEN FATHER'S OCCUPATION AND SOCIO-ECONOMIC STATUS OF YOUTH*

Father's occupation score (Barr Scale)	Number of youth — Socio-economic status score on Sim's scale†								
	0–1.5	1.5–2.6	2.7–3.7	3.8–4.9	5.0–6.0	6.1–7.2	7.3–8.3	8.4–up	Total
17–20.7			1				7	12	20
15–16.9			1	16	17	55	104	168	361
13–14.9		3	3	15	33	44	73	53	224
11–12.9		27	63	152	246	392	331	231	1442
10–10.9‡	25	61	94	146	107	97	38	2	570
8– 9.9	38	109	169	198	194	154	66	2	930
6– 7.9	95	215	213	241	175	123	60	3	1125
4– 5.9	77	98	80	85	53	30	9		432
2– 3.9	165	233	184	166	80	41	18		887
0– 1.9	8	5	1	6	2	3			25
Total	408	751	809	1025	907	939	706	471	6016

* Data from Updegraff, Harlan. *Inventory of Youth in Pennsylvania.* (Washington: American Youth Commission, 1936), Table 11, p. 18.
† The score intervals employed were only approximately equal.
‡ For some unexplained reason this interval was only one unit in width.

[5] Terman, Lewis M. *Genetic Studies of Genius.* Vol. I, 66-72.

The Pennsylvania data also reveal a linear correlation of .45 and a non-linear correlation of .48 between socio-economic status and grade completed by approximately 9,000 youth.[6] These correlations are based upon a restricted grade range since the 1928 youth would normally have reached only the 12th grade at the time the data were collected, and the 1926 youth could not have finished college.

Now we know from other data that the youth's occupation correlates to a considerable extent with the grade level attained; hence, these Pennsylvania figures would suggest that the father's economic position conditions to a measurable extent the economic position of the youth. The connection we have tried to establish by this roundabout method is that father's occupation and socio-economic status are correlated, socio-economic status influences the grade level attained, and that grade-level affects the occupational field in which youth is working.[7]

Muncie, Indiana survey. In the Muncie, Indiana, study data were obtained from 484 high school graduates who were employed full time (more than 30 hours per week), relative to their own occupation and the usual occupation of their fathers. Of this group 324 were male youth and 160 were female youth. This does not include 120 youth mostly in semi-skilled and clerical occupations who did not give their father's occupation. To what extent they may bias the data we do not know.

These data show directly the relationship between occupational groups of the fathers and those of their employed sons and daughters. The occupational classification used, with minor adaptations, was that developed by the Federal Emergency Relief Commission, which aimed to group occupations on a socio-economic basis. The fact that this sample population of 484 youth was constant relative to grade attainment—completion of high school—makes them of special significance. If we find evidences of stratification in this population, we shall conclude that while public education may reduce social and economic barriers, it does not remove the limitations associated with the economic status of the family as measured by father's usual occupation. The basic data are given in Table II, while various transformations of these data for analytical purposes are shown in Tables III, IV, and V.

Table II shows that while the modal occupational group among the fathers is the skilled trades, those among the youth are sales and clerical,

[6] Updegraff, *ibid.*, appendix Table 8.

[7] In the Maryland survey a marked correlation was discovered between the grade completed by the employed youth and the occupational field in which he was engaged.

TABLE II

RELATIONSHIP BETWEEN YOUTHS' OCCUPATION AND THEIR FATHERS' USUAL OCCUPATION: MUNCIE, INDIANA*

(Full-time employed youth who are high school graduates)

Youth's occupational group	Number of youth reporting father's usual occupation as							
	Servant	Unskilled	Semi-skilled	Skilled	Sales Clerical	Managerial	Professional	Total†
Professional	—	2	1	2	2	1	7	15
Managerial	—	—	2	5	2	10	—	19
Sales, clerical	1	14	30	59	41	31	7	183
Skilled	—	4	8	21	1	7	—	41
Semi-skilled	3	35	41	61	11	21	4	176
Unskilled	—	4	4	9	3	4	1	25
Servants	—	7	3	9	3	2	1	25
Total	4	66	89	166	63	76	20	484

* Fuller, Raymond G. *A Study of Youth Needs and Services in Muncie, Indiana.* (Washington: American Youth Commission, 1937), p. 190-191.

† 324 male youth and 160 female youth.

and the semi-skilled occupations. These latter two classifications account for approximately three-fourths of the youth. In the unskilled and servant group are found 14.5 percent of the fathers, and 10.3 percent of the youth.

Of the youth in the professions, nearly one-half came from professional homes; of youth in managerial positions, slightly more than one-half came from homes where the father was in this field. Less than one-fourth of the youth in the sales and clerical fields came from the same occupational group, showing that this occupational group draws from many occupational fields. Approximately half of the skilled youth reported a father with a skilled trade, while less than one-fourth of the semi-skilled came from a semi-skilled occupational background, indicating that among these employed high school youth this occupational group is somewhat like the sales and clerical group with respect to the variety of family occupational backgrounds represented by the youth. Thus it appears that those with professional, managerial, or skilled family backgrounds have a distinct advantage in getting jobs in these fields.

Of the youth who come from wage earner homes, most of them are in wage earner occupations, though a large proportion are in the sales and clerical ("white collar") positions. For example, 72 percent of the unskilled and servant youth came from this kind of occupational background. Conversely, most of the youth who come from white collar homes are in white collar positions although not a small proportion are in wage

earner jobs. A reclassification of the youth on this basis is given in Table III together with a chi-square test to determine if the two occupational classifications of youth and father are independent. Two reasons justify this grouping. In the first place, they represent certain social and economic "levels." In the second place many cells in Table II contain less than 5 cases, the minimum recommended for a chi-square test. In this table the white collar group includes the professions, the proprietors and managers, and the sales and clerical workers; while the skilled and semi-skilled workers are combined, as are the unskilled and the servants.

Analysis of the data in Table III shows a distinct relationship between the occupational classification of fathers and that of youth. The value of p for the chi-square test is less than 0.01 showing a highly significant departure from the condition of independence. An examination of that section of the table which shows the differences between the actual and the expected frequencies, discloses frequencies in the diagonal higher than those expected, and frequencies in all other cells, except one, less than those expected. This is the condition which will exist in case two attri-

TABLE III

RELATIONSHIP BETWEEN YOUTH'S OCCUPATION AND THE FATHER'S USUAL OCCUPATION—MUNCIE, INDIANA

(Based upon a three-point classification)

Youth's Occupational Group	Number of youth reporting father's usual occupation: Unskilled, servant	Skilled, semi-skilled	White collar	Total
White collar	17	99	101	217
Skilled, semi-skilled	42	131	44	217
Unskilled, servant	11	25	14	50
Total	70	255	159	484
	Expected number			
White collar	31.4	114.3	71.3	217.0
Skilled, semi-skilled	31.4	114.3	71.3	217.0
Unskilled, servant	7.2	26.4	16.4	50.0
Total	70.0	255.0	159.0	484.0
	Differences (Actual minus expected)			
White collar	—14.4	—15.3	29.7	
Skilled, semi-skilled	10.6	16.7	—27.3	
Unskilled, servant	3.8	— 1.4	— 2.4	
	Chi-square			
White collar	6.604	2.048	12.372	21.024
Skilled, semi-skilled	3.578	2.440	10.453	16.471
Unskilled, servant	2.006	0.742	0.351	3.099
Total	12.188	5.230	23.176	40.594

butes or categories are correlated. The exceptional group is the skilled and semi-skilled youth with unskilled fathers; here the actual frequency is greater than the expected, showing a tendency to run counter to the condition of stratification. Another point of significance is the tendency of the 50 unskilled youth to be distributed very close to that expected under the condition of independence; in other words, father's occupation does not appear to influence the distribution of these unskilled high school youth. It is probable that the high school has been selective, and that this is a residual group.

Of the three groups of father's occupations, the white collar group contributes the most to chi-square, the unskilled group the next largest amount, while the skilled and semi-skilled group contributes the least.

We conclude therefore that among such a restricted universe as full-time employed youth who are high school graduates, a significant relation exists between the usual occupation of the father and the present occupation of his sons and daughters 16 to 25 years of age.

Tables IV and V show the differences between the occupations of male youth and female youth relative to those of their fathers. It is obvious that male youth enter all seven occupational groups while female youth are limited in the main to four occupational groups. While most of the boys are in the semi-skilled trades, most of the girls are in the sales and clerical positions.

Table V shows that while the occupations of the sale youth correlate highly with those of their fathers, the occupations of the female youth do not. More of the female youth from families where the father is unskilled or in personal service, are in the white collar positions than in any other field. While it is true that most of the daughters (82 percent) of white collar fathers go into white collar positions, almost as high a proportion (73 percent) of the daughters of the skilled and semi-skilled fathers are working in this same field. The main point we wish to make is the difference between male and female youth relative to tendencies toward occupational stratification. There is a very strong tendency for the occupations of the girls to be free from the influence of the father's occupation; something which is not true of the occupations of the boys. Of course it is well to remember that the girls in white collar jobs may be making no higher wages than their sisters who are operating machines in a factory; as a matter of fact, in Muncie these two groups received median weekly wages not significantly different, the former group receiving $13.50 and the latter $13.85.

TABLE IV

RELATIONSHIP BETWEEN FATHER'S USUAL OCCUPATION AND YOUTH'S OCCUPATION, BY SEX—MUNCIE, INDIANA

Youth's Occupational Group	Number of youth reporting father's usual occupation as: Servant	Unskilled	Semi-skilled	Skilled	Sales, Clerical	Managerial	Professional	Total
Male Youth								
Professional	—	1	—	1	—	—	2	4
Managerial	—	—	2	2	2	10	—	16
Sales, clerical	1	6	12	22	19	18	5	83
Skilled	—	4	8	21	1	7	—	41
Semi-skilled	3	27	36	53	9	18	3	149
Unskilled	—	4	2	9	3	4	1	23
Servant	—	1	—	5	1	1	—	8
Total	4	43	60	113	35	58	11	324
Female Youth								
Professional	—	1	1	1	2	1	5	11
Managerial	—	—	—	3	—	—	—	3
Sales, clerical	—	8	18	37	22	13	2	100
Skilled	—	—	—	—	—	—	—	—
Semi-skilled	—	8	5	8	2	3	1	27
Unskilled	—	—	2	—	—	—	—	2
Servant	—	6	3	4	2	1	1	17
Total	—	23	29	53	28	18	9	160
Grand total	4	66	89	166	63	76	20	484

In Table V, the value of chi-square for male youth is 36.645, while that for female youth is 15.286, both representing probabilities less than 0.01, showing therefore a distinct departure from the condition of independence. But this departure from independence, as we have stated, is different for the girls than for the boys. If for the former group we combine the fathers in the unskilled occupations with those in the semi-skilled and the skilled in order to eliminate the effects of few cases in the unskilled group, we obtain a new table with the following entries:

Youth's occupation	Father's occupation (female youth): Skilled Semi-skilled Unskilled	White collar
White collar	69	45
Skilled, semi-skilled	21	6
Unskilled, personal	15	4
Total	105	55

With these data the hypothesis was tested that regardless of the occupational group of the father, 70 percent of the female youth are in white

collar positions, 20 percent are in skilled and semi-skilled work, and that 10 percent are in the unskilled and personal jobs. If one does this he obtains a value for chi-square of 5.397, which for four degrees of freedom gives a probability of 0.25, a value which indicates that the hypothesis is consistent with the data.

TABLE V

TESTING THE RELATIONSHIP BETWEEN FATHER'S OCCUPATION AND YOUTH'S OCCUPATION BY SEX—MUNCIE, INDIANA

	Father's usual occupation							
	Number of Male youth				Number of Female youth			
Youth's occupation	Unskilled servant	Skilled, semi-skilled	White collar	Total	Unskilled servant	Skilled, semi-skilled	White collar	Total
White collar	8	39	56	103	9	60	45	114
Skilled, semi-skilled	34	118	38	190	8	13	6	27
Unskilled, servant	5	16	10	31	6	9	4	19
Total	47	173	104	324	23	82	55	160
	Expected number				Expected number			
White collar	14.9	55.0	33.1	103	16.4	58.4	39.2	114
Skilled, semi-skilled	27.6	101.4	61.0	190	3.9	13.9	9.2	27
Unskilled, servant	4.5	16.6	9.9	31	2.7	9.7	6.6	19
Total	47.0	173.0	104.0	324	23.0	82.0	55.0	160
	Difference (Actual minus expected)				Difference (Actual minus expected)			
White collar	—6.9	—16.0	22.9		—7.4	1.6	5.8	
Skilled, semi-skilled	6.4	16.6	—23.0		4.1	—0.9	—3.2	
Unskilled servant	0.5	—0.6	0.1		3.3	—0.7	—2.6	

Maryland survey. Data from the Maryland youth survey throw additional light on the question of stratification. More than six thousand youth 16 to 25 years of age, permanently out of school and employed, indicated not only their own occupation but the usual occupation of their fathers. The two-way classification of these youth is shown in Table VI wherein columns stand for the father's occupational group while the rows indicate the youth's occupation. Here, as before, the white collar group include professions, managerial and proprietary, sales, and clerical occupations.

Clearly there is a departure from the condition of independence of classifications. This is shown not only by the percentages based upon the number of fathers in each field as a base, but upon the size and sign of the differences between the actual and the expected frequencies. A positive correlation is indicated by the positive differences along the diagonal extending from the lower left to the upper right-hand section of the table, and by the negative differences growing larger as one goes farther and farther from this diagonal. This relation is further indicated by the contingency coefficient which is .44, where the maximum possible value is about .82, and where broad grouping has not been corrected for.

Analysis of Table VI shows that while 40.8 percent of the youth whose fathers are unskilled are in "higher" fields of work, 35.9 percent of the youth whose fathers are white collar are in "lower" fields of work. In other words a somewhat greater proportion of the unskilled "go up" than white collar "come down." With regard to youth from a skilled and semi-skilled background we find that 35.9 percent are in the white

TABLE VI

RELATION BETWEEN FATHER'S OCCUPATION AND YOUTH'S OCCUPATION—MARYLAND
(Non-student employed youth)

Youth's occupation	Number of youth reporting father's occupation: Unskilled, domestic	Skilled, semi-skilled	White collar	Total
White collar	440	782	1205	2427
Skilled, semi-skilled	438	889	387	1714
Unskilled, domestic	1275	506	288	2069
Total	2153	2177	1880	6210
	Percentage			
White collar	20.4	35.9	64.1	39.1
Skilled, semi-skilled	20.4	40.8	20.6	27.6
Unskilled, domestic	59.2	23.3	15.3	33.3
Total	100.0	100.0	100.0	100.0
	Expected number			
White collar	841	851	735	2427
Skilled, semi-skilled	594	601	519	1714
Unskilled, domestic	718	725	626	2069
Total	2153	2177	1880	6210
	Differences (Actual minus expected)			
White collar	—401	— 69	470	
Skilled, semi-skilled	—156	288	—132	
Unskilled, domestic	557	—219	—338	

collar group while 23.3 percent are in the unskilled group. Hence a greater proportion of the youth with this background are in the white collar class than in the "lower" class of unskilled.

Table VI shows that 59 percent of the youth from unskilled home backgrounds are unskilled, 41 percent of those with skilled and semi-skilled backgrounds are in similar occupations, and that 64 percent of those with white collar backgrounds are in white collar positions.

On the basis of numbers we find that of the 6,210 youth, 3,369, or 54.3 percent, are in the same fields as their fathers; 1,181, or 19.0 percent are in occupations ostensibly "lower" than those of their fathers; while 1,660, or 26.7 percent, are in occupations "higher" than those of their fathers.

No doubt there will be a difference of opinion with regard to the meaning of these data. Certainly it seems fair to state that the occupational status of the majority of youth appears to be clearly related to the occupational status of the father.

The question as to the probable occupational shifts for the better that may take place as these youth grow older will be anticipated. Judging from the education of these youth, the amount of technical training they have had, the extent to which vocational training was desired, the probability that this desire will be realized, and the present employment situation, one finds it hard to believe that any drastic shifts will take place in the occupational pattern which we have found.

As a matter of fact, judging from the unpublished data obtained from the Urban Study of Consumer Purchases,[8] we can expect that as the age of these workers increases up to 50 years, the range of annual average earnings between the highest and the lowest occupational groups will *increase*. This spread in income means that while youth in the professional and managerial positions will move relatively rapidly into higher and higher income brackets, youth in the unskilled and semi-skilled jobs will move relatively slowly to a low maximum; the net effect is that economic stratification based on both occupation and income is not only maintained, but probably is accentuated, as age increases.

Finally in Table VII we show the relationship between the father's usual occupational field, and certain social and economic characteristics

[8] A federal coöperative survey of the income and expenditures of American families made by the National Resources Committee, the Bureau of Labor Statistics, the Bureau of Home Economics, and the Works Progress Administration. Several bulletins are in preparation.

of the youth covered by the Maryland survey. Let us draw the contrast between youth who come from homes of professional people and those from the homes of the unskilled. Youth from professional families come from smaller families, are more likely to have home conveniences, go through high school and on into college in much larger proportions, start to work at a later average age, and because of these tend to postpone marriage and have fewer children. On the other hand, youth from homes of the unskilled are members of larger families, are less likely to have home conveniences, leave school at a relatively low level, start to work nearly three years earlier, and are almost twice as likely to be married, although they are no older on the average than those who come from professional families, and no different relative to sex composition.

All of these conditions tend to put the youth with a professional or similar background at a distinct advantage in the social and economic world, while at the same time they make it harder for the person from the unskilled background to move to a better social and economic level. Without education or training, with a work experience that began early but which may be of little help for advancement, and burdened with early marriage, these youth are not very likely to advance far in overcoming such obstacles.

Finally, partly because they left school early, these underprivileged youth have not developed a habit of reading and using the public library, and as a result they are neither able nor willing to use whatever economic advantages may be derived from this source.

Conclusion. Considerable evidence supports the hypothesis of economic stratification. This evidence was consistent whether it came from Pennsylvania, Maryland, or Muncie, Indiana. This tendency was found to be more pronounced among male youth than among female youth. It existed even within such a selected group as employed high school graduates.

The educational implications of these data are of basic importance. They support Count's findings of more than a decade ago relative to economic selection in the high school; they show that the college is even more selective. That the high school is far from being the "people's college" is evident from the fact that youth from most of the occupational groups did not graduate from high school; as a matter of fact the average grade attainment is hardly more than that represented by the elementary school.

These data show that education like other social characteristics is a

matter of the income of the family, since in general income correlates highly with the occupational groups we have used.[9] It will take more, therefore, than a shift in the boundaries of school districts in order to equalize educational opportunities.[10] The even distribution of educational opportunity as represented by the free tax-supported public high school is far from representing equal opportunity so long as there is such an uneven distribution of family income as now exists. The variability

TABLE VII

RELATIONSHIP BETWEEN FATHER'S OCCUPATION AND VARIOUS SOCIAL AND ECONOMIC CHARACTERISTICS OF YOUTH—MARYLAND, 1936

Father's occupation	Median number of children in family	Percent of all youth			Median age of youth	
		With no home conveniences	Married*	Males	At time of interview	First full time job
Professional	3.6	0.3	15.8	48.9	20.7	19.5
Office	3.6	0.8	17.8	48.2	20.2	18.7
Sales	3.6	0.2	19.2	50.3	20.6	18.3
Managerial	4.0	0.8	16.6	48.1	20.6	18.4
Skilled	4.7	1.0	22.3	52.4	20.0	17.6
Semi-skilled	4.9	2.7	23.4	51.4	19.7	16.7
Personal	4.9	6.8	22.9	50.0	20.3	17.7
Unskilled	5.6	11.8	29.4	48.9	20.4	16.7
Farm owner	6.1	4.9	26.2	54.2	20.9	17.2
Farm laborer‡	6.9	35.7	34.5	57.3	21.0	16.3

Father's occupation	Percent of non-student youth§		Median grade completed by non-students§	Percent of youth	
	High-school graduates only‖	Some college education¶		Using available public library	Reading is chief recreation
Professional	32.8	45.0	12.8	70.0	35.5
Office	44.3	22.9	12.0	60.5	31.9
Sales	40.2	20.7	11.9	60.5	30.2
Managerial	37.8	24.4	12.1	57.8	29.3
Semi-skilled	23.1	3.6	10.0	40.3	24.6
Skilled	29.1	6.6	10.6	47.5	26.1
Personal	21.1	9.8	10.3	51.3	22.5
Unskilled	10.7	2.2	8.2	33.7	20.1
Farm owner	27.4	6.7	9.6	27.5	22.8
Farm laborer‡	3.6	0.2	7.1	18.2	13.6

* Were, or had been married.
‡ Mostly negroes.
§ Youth permanently out of school.
‖ 11th or 12th grade graduates (dual system).
¶ At least one year of regular school work beyond high school graduation.

[9] Data given in the Maryland report.

[10] Maryland has had the county unit system of education for several years.

of family income, as well as that of school district revenues, must be reduced.

The implications for vocational guidance are not easy to isolate. Are youth following the field of the father because they like to, or because they have to? Our position is that youth have not much choice in the matter; they get positions any way they can and this often turns out to be through friends and relatives.[11] We know too that more persons desire to enter the professional and other white collar positions than these fields can absorb. If it is difficult for those highly trained to obtain positions, what can be said for those who have so little to offer?

We might of course consider developing a family tradition of skill and competence in a particular occupation, such as exists in Europe, but with trades becoming obsolete due to the introduction of new processes and machinery, and so many jobs being repetitive and monotonous and not permitting growth in workmanship, this does not seem to offer much hope.

General comments. These are snapshots of 1936; what the trend is only continued research in this field will reveal. There is need, not only for further testing of the hypothesis, but a consideration of how it affects our ideas of democracy, and what ought to be done about it. Some of the particular problems which might be investigated further include how stable this initial stratification really is, and to what extent the age-earnings curve of the son parallels that of the father.

It is highly probable that continued depression and unemployment will accentuate the tendency toward stratification unless something is done to prevent it. Breaking down stratification is more a question of creating an abundance of different kinds of jobs than one of individual guidance; after all, guidance, however wise and well-intentioned, cannot operate in an economic vacuum. Employment opportunities should not be biased in favor of special social and economic groups. Instead they should be provided for all, not on the basis of the economic position of the family, but on the basis of individual needs and abilities.

[11] A follow up study of 602 full-time employed high school graduates in Muncie, Indiana, showed that half of them had obtained their position through friends or relatives. This method and personal application accounted for 88 percent of the positions. See Fuller, *ibid.*, p. 194.

SOME NOTES ON VALIDITY

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THE necessity for determining the validity of anything (problem, method of inquiry, data gathering technique, method of analysis, or finding) arises when doubt appears concerning the truth or authenticity or essential reality—the "*ding an sich*"—of any of these items.

The determination of validity is the most essential aspect of any procedure or pronouncement. Validity is the guarantee of genuineness and verity. Discussions in the educational literature of this prime essential of research or of logic are, strangely enough, surprisingly meager and stereotyped. In order to meet their own seminar needs the writer and a number of graduate students at the University of Southern California worked out the following series of statements on validity. It may need some corrections. The summary is presented for emphasis in brief staccato sentences.

I. DEFINITIONS

1. Validity is essentially a relative matter. It is always determined to a defined item.
2. Validity is an evaluation of the extent to which:
   a. Any problem (as defined) is (i) truly a problem and (ii) a worth while problem.
   b. Any method of inquiry (as defined: experimental, historical, philosophic, comparative-causal, normative-survey) does what it purports to do.
   c. Any data gathering device (as defined: test, test item, questionnaire, interview, frequency count, observational technique) does what it purports to do.
   d. Any method of analysis (as defined: verbal analysis, statistical analysis, breakdown of situations, or other methods) does what it purports to do.
   e. Any finding (as defined) is what it purports to be, an authentic representation of the defined facts in the matter.
3. Validation is essentially an act of judgment.
4. Validation, the act of judgment, is controlled by a set of criteria, which may be explicit or implicit in varying degrees. (In the ordinary everyday processes of validation the criteria are apt to be implicit and

not very clear. Herein lies one of the chief pitfalls of thinking. The more careful validation of important items requires explicit criteria.)

5. Validation, the act of judgment which is controlled by a set of criteria, is further aided by certain objective statistical procedures. (See below.)

6. Validation techniques are as follows:

a. Judgment by experts
   i. Guided by abstract, logical criteria
   ii. Guided by the observation of uncontrolled events
   iii. Guided by the observation of controlled events

b. Computation of correlations
   i. With another item the validity of which is known and which has been previously determined by legitimate methods
   ii. With a composite of other items of varying degrees of proven or judged validity
   iii. Negatively with tests of items known to be different from the one under consideration

7. The judgments of experts when using controlled or uncontrolled events as a further aid is of course still guided by criteria and assumptions regarding the nature of the observed events and regarding the ability of the observer to see and to interpret. The objective and semi-objective items under observation play a larger part, however.

II. GENERAL ILLUSTRATIONS

1. Judgments of experts guided by abstract, logical criteria.

This is to be seen when committees, commissions, or juries are used. By "taking thought" these experts set up criteria which are then applied to whatever item is under discussion and for which the criteria were set up.

Thus operated various national yearbook commissions and many lesser committees in validating philosophic principles, curriculum content, degrees of difficulty (before objective testing of this), correctness of logical argument, etc.

This gives us valid (as valid as we can ever know) statements of philosophic principles, pedagogic creeds, aims of education, some curriculum material.

This method of validating through the use of criteria is, of course,

involved in the two following methods as is suggested in the note under (7) above.

2. Judgment of experts guided by observation of uncontrolled events.

This is to be seen when individuals or groups make analytic studies of original sources by means of organized interviews, questionnaires, job analyses, analytic breakdowns of life situations.

Thus operated innumerable investigators in education and other fields.

This gives us valid (as valid as we can ever know) inventories of information possessed, of social practices, social needs, errors made.

3. Judgment of experts guided by observation of controlled events.

This is seen when individuals or groups carry on equivalent, group, or rotation group experiments, laboratory analyses, genetic natural history case studies.

Thus operated innumerable investigators in education and other fields.

This gives us valid (as valid as we can ever know) inventories of facts, general principles, causal factors.

4. Computation of correlations.

(See any standard text on statistics and note methods suggested.)

III. SPECIFIC ILLUSTRATIONS

The literature of educational and psychological research contains an unlimited number of investigations in which one method or other of validation was used. Literally thousands of cases are available, hence it is futile to attempt a list of specific items.

An important class exercise would be to have students bring in specific monographs or other accounts of investigations, analyze and criticise the technique of validation used.

EDITORIAL

NEW BASES FOR CURRICULUM

History will, undoubtedly, record the present period as one of great transition in the field of curriculum and educational practices in general. Since educators representing all kinds of interests are continually pressing for recognition of their points of view, the psychologist feels at liberty to join with his ideas.

Undoubtedly, the greatest demands for changes and additions to the curriculum arise largely from interests outside of the school demanding that this or that type of applied course be offered at some appropriate level. These innovations are frequently instituted without much reference to the natural interests of the pupils or whether the material may be organized in such manner as to fit their psychological interests or abilities. The situation is somewhat parallel to giving a tailor materials and measurements at variance to the tastes and stature of his client and expecting to get a streamline fit.

In a general sense the psychologist wishes to appeal for a better knowledge and understanding of the abilities and interests of the children and of how they may be related to curriculum offerings. A few of these problems are being sketched here for consideration.

We note increasing emphasis today upon understanding the emotional lives of children. There is too little understanding of what emotional conflicts are, how they arise, and what influences they have upon intellectual learning as such. The writer believes that there are two fundamental emotional conflicts which largely dominate and influence pupils of school age. Whenever either of these conflicts reach acute stages the relatively quieter and less exciting intellectual activities of book learning tend to suffer severe eclipses regardless of intellectual abilities.

The major emotional conflict of little children through the elementary schools and extending up to adolescence has two sides of its dilemma, or conflict. The one is the line of satisfying one's own selfish inclinations and desires; the other is pressure by teachers, parents, the church and all other agencies to be unselfish and self-sacrificing. While we readily

grant that the second idea is one of the worthy objectives of education, religion, etc., little children are often herded so rapidly in this direction that they become conflicted, negative, and conditioned against such social participation. They develop a bad case of emotional indigestion. In the midst of this emotional turmoil we more or less blindly, yet hopefully, proceed with teaching the three R's and similar materials which appear as matters of minor consequence to children who are suffering from the thwarting of unsolved conflicts in the emotional fields.

If we could be reasonably certain that children are, first of all, fairly happy with a minimum of extreme emotional conflict, learning in the usual sense would take place with surprising ease and rapidity.

The second major conflict involves that of adolescence and dominates the junior and senior high school periods. In this case the one line of drive is the childhood point of view that decisions are made by others. In conflict with this idea is the adult one in which one makes his own decisions or intends to make most of them. The struggling adolescent rapidly fluctuates between these two fundamentally different ideas and chiefly in his activities outside of school is he the victim of such indecision. Our greatest service to adolescents would be to reach the parents with an understanding of this pattern so that they may help rather than hinder their own flesh and blood over this period of greatest trial. The schools themselves should seek out opportunities to help the conflicted adolescent with a problem in his school activities and interests.

The young child and the adolescent have had the benefit of altogether too little of our understanding, interpretation, and assistance during these two major conflicts. These conflicts are the things which loom large in their lives, rather than success or failure in this or that school subject.

Finally, there should be more emphasis upon the inventory of basic abilities which characterize children at various ages and levels. We need a better understanding of standards and abilities in such simple qualities as speed and skill of motor precision, the development of vocabulary throughout all grade levels, their insight into social understanding, their abilities in visual reasoning and imagery, their abilities and interests in mechanical lines, and a host of other aptitudes.

We do not deny but that many enlightened schools and individual teachers here and there have made great progress in these matters either with or without the labels or terminology which have just been used. In like manner the psychologist and others have made progress in the inventory of children's abilities and understanding of their conflicts. The

challenge still remains to make wider applications to these natural trends and abilities of children in building the curriculum today. While the present forces influencing the curriculum will continue to operate, they will be effective only as long as they take better account of the real interests and abilities of children.

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REVIEWS

Address all communications relative to book reviews to Editor Kai Jensen, University of Wisconsin, Madison, Wisconsin.

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ELLWOOD, CHARLES A. *A History of Social Philosophy* (New York: Prentice-Hall, Inc., 1938), pp. xiv + 581. $2.60.

DURKEIM, ÉMILE. *The Rules of Sociological Method* (Chicago: University of Chicago Press, 1938), pp. ix + 146. $2.00.

DEWEY, JOHN. *Logic: The Theory of Inquiry* (New York: Henry Holt and Company, 1938), pp. viii + 546. $3.00.

NATIONAL ASSOCIATION FOR THE STUDY OF GROUP WORK. *New Trends in Group Work.* (New York: Association Press, 1938), pp. xii + 229. $2.00.

GREULICH, WILLIAM W. *et al. A Handbook of Method for the Study of Adolescent Children.* Monograph of the Society for Research in Child Development. Vol. III, No. 2, Serial No. 15 (Washington: National Research Council, 1938), pp. xvii + 406. $2.25.

SCROGGS, SCHILLER. *Systematic Fact-Finding and Research in the Administration of Higher Education* (Ann Arbor: Edwards Brothers, Inc., 1938), pp. viii + 133. $2.00.

HOLLIS, ERNEST VICTOR. *Philanthropic Foundations and Higher Education* (New York: Columbia University Press, 1938), pp. x + 365. $3.50.

By a coincidence books of significance to research methodology in most of the major fields to which education is indebted are grouped on the reviewer's desk at this writing. They are listed above in roughly the following sequence: library science, history of science and of history, philosophy and logic, sociology and social work, psychology and human biology, and educational research itself and philanthropic foundations. Obviously, no one person has sufficient background to evaluate critically and authoritatively such a wide range of volumes, whose unity is found in their emphasis on research procedures. Therefore, their contents will be characterized briefly as a pointed suggestion to educational workers that one way to avoid the narrowness of pedagogical provincialism is to utilize the major contributions of related social sciences.

The volume by Miller points out that an interdependence between the government and education is found in the discovery and publication by the government of much new information which educational institutions employ in furthering research and teaching. However, the service of the depository system for distributing government publications reached only one-fifth of the college libraries during 1934. Other

libraries have had to employ some other method of securing government publications. College librarians in institutions which were selective depositories chose from a total of 737 serial federal titles in 1932. Obviously, this selection has presented to librarians a difficult, if not impossible, problem of evaluation as the basis for choosing serial documents. Therefore, Miller secured from 748 college instructors their appraisal of the value of federal documents for work in their particular subject fields in the four-year college. The resulting volume consists in the main of ranked lists of titles reflecting the judgments of college librarians and instructors.

Ornstein's treatise was undertaken as a doctoral dissertation at the suggestion of James Harvey Robinson, and privately printed in 1913. The work proved so valuable that it was reissued, with corrections and modifications, in 1928. The enduring significance of the book caused a third edition to be printed in 1938. The various topics treated include: general scientific advance in the seventh century, role of individual scientists, learned societies and journals, and science in the universities of Italy, France, Germany, England, and Holland. The author's conclusion is that "it was the unmistakable and magnificent achievement of the scientific societies of the seventeenth century, not only to put modern science on a solid foundation, but in good time to revolutionize the ideals and methods of the universities and render them the friends and promoters of experimental science instead of the stubborn foes they had so long been" (p. 263).

Kraus has made available the first "survey of the whole field of American Historical writing," although partial treatments of the development of historiography in the United States have appeared earlier. He proceeds from the accounts of the Norse voyages and the early histories of exploration in the western hemisphere through the colonial period (which saw the finger of a divine providence in history), the growing national spirit of 1750-1800, the first half of the nineteenth century with its marked emphasis on patriotism and the collection and preservation of records, the rise of the "scientific school" with signs of the newer trend appearing near the middle of the last century, the nationalist school of the period following the Civil War, historians of the people and of social forces, the imperial school of colonial history, interpretive writings, frontier and sectional historians, biography and coöperative historians. In terms of current interest in the development of research methodology and of history, it probably is more than a coincidence that there appeared during the same year this significant analysis of the entire field of American historiography and Barnes' *History of Historical Writing* (University of Oklahoma Press), which presents a world-wide view of the development of historical writing from the age of the picture-writers to the present. Students and writers of the history of education have much to learn from history and historiography, areas which too frequently have been neglected by workers in education.

Ellwood calls his book *A History of Social Philosophy* rather than a history of sociology, because social thought in the areas of sociology and philosophy, as well as in psychology and education, was closely interwoven before the twentieth century. Therefore, the volume is significant for workers in all of these fields. The record, ending shortly after the opening of the present century, is limited to the social theories of western Europe—Italy, France, England, and Germany, with attention to Greek thought as the origin of social philosophy. The treat-

ment is biographical, with each individual's theories analyzed in terms of scientific method, and in terms of doctrines of social origins, social development, social organization and functioning, and social order and social progress. Among the thinkers included are: Socrates, Plato, Aristotle, Augustine, Aquinas, Machiavelli, Bodin, Luther, Melanethon, Calvin, Bacon, Hobbes, Locke, Vico, Montesquieu, Turgot, Hume, Voltaire, Rousseau, Condorcet, Kant, Herder, Adam Smith, Ferguson, Fichte, Hegel, Nietzsche, Gobineau, Buckle, Marx, Saint-Simon, Comte, Le Play, Tarde, Durkheim, Spencer, Lilienfeld, Schaeffle, Gumplowicz, Ratzenhofer, Sumner and Ward. In this connection should be mentioned the recent encyclopedic work in two volumes by Barnes and Becker, *Social Thought from Lore to Science* (Heath, 1938), covering the social philosophy of all peoples, especially European and American.

In view of the recent historical works by Ellwood and by Barnes and Becker, described in the preceding paragraph, it is appropriate that during the same year a translation from the French of Durkheim's *The Rules of Sociological Method* has appeared. It was first published in 1895 and is considered a classic in sociology and in the methodology of political science. Even at that early date Durkheim "insists (a) that there is a genuine distinction of field or plane between the natural and the social sciences, and (b) that the methods of science applicable in the field of the natural sciences are, nevertheless, valid within the social field" (p. xiii). The author defines a social fact, and then presents rules for the observation of social facts, for distinguishing between the normal and the pathological, for the classification of social types, for the explanation of social facts, and relative to establishing sociological proofs. He sums up the distinctive characteristics of his method as: (1) entirely independent of philosophy, (2) objective, and (3) exclusively sociological. In this point of view and in emphasizing the methods of the natural sciences, he tended to leave out of the picture the psychology of the individual and the possibility of value judgments in the social sciences.

At an age when most professional men have long ceased any productive work, John Dewey continues his authorship of notable books and articles. He will be eighty on October 20, 1939. His better known works, in addition to *Logic*, published in book form at or after the age of seventy, include: *Sources of a Science of Education*, 1929; *Quest for Certainty*, 1929; *Way out of Educational Confusion*, 1931; the revised edition of *How We Think*, 1933; and *Experience and Education*, 1938. The new book represents a development of ideas regarding the nature of logical theory, over a period of forty years, as previously expressed in part in the author's *Studies in Logical Theory*, *Essays in Experimental Logic*, and *How We Think*. His treatment of logic as the theory of inquiry emphasizes identification of reflective thought with objective inquiry—a theory of logic in accord with sound methods of attaining knowledge and scientific practice. Students of research methodology probably will be most interested in the series of seven chapters dealing with the logic of scientific method. This new book and other writings of Dewey should go far to reconcile the positions of extremists who argue that the methods of science and philosophy are incompatible and who maintain on the one hand that only philosophy, logic, and ethics can discern permanent values, or on the other hand that only science by objective, pragmatic methods can reveal enduring truth.

New Trends in Group Work is a series of chapters by a group of workers in-

terested in coöperative effort in an attack on the problems of modern society. Three chapters have been written by individuals well known in education—John Dewey, William H. Kilpatrick, and Goodwin B. Watson. The five parts of the book are devoted to the problems of group work in relation to: the present social scene, education, leadership, case work, and record keeping. A second volume in this field is planned within the near future. Additional testimony concerning the need for training in group methods of problem solving in a democracy is found in the current yearbook, *Coöperation*, of the Department of Supervisors and Directors of Instruction, National Education Association.

A Handbook of Methods for the Study of Adolescent Children is the outcome of more than two years of work by five Fellows in Child Study of the General Education Board, assigned to work at Yale University where the facilities of the School of Medicine and of the Institute of Human Relations were made available. They received further assistance from seminars and from conferences or consultations with authorities in the fields represented. The five parts of the handbook deal with anatomical, biochemical and physiological, medical and clinical and psychological aspects of measurement, as well as problems not involving direct measurements of children. The hope is expressed in the Introduction that certain omissions by way of available methods of studying child growth and development in such areas as neurology, psychiatry, endocrinology, sociology, and cultural anthropology will be provided for later by other contributors.

The purpose of Scroggs' study, a doctoral dissertation at Yale, was to ascertain how an office of administrative statistics and research in a higher institution should systematically determine upon and present its data. The several chapters consider the kinds of information to be gathered, classification and analysis of data, and the administrative organization for conducting such research.

Hollis presents in unusually attractive format the most comprehensive treatment available of philanthropic foundations and higher education. Part I considers the foundation as a social institution in terms of historical development, policies, and organization. Part II deals with its activities for higher education: contributions in general, defining the college, disseminating information, student and faculty welfare, endowment and capital outlay, professional education, non-professional education, and distribution of grants. In a well written final chapter the conclusion is reached that higher education has been on the whole favorably influenced by the foundations to the extent of approximately $680,000,000 in a direction increasingly toward supporting social and cultural ideas and institutions that contribute to a rapidly changing civilization. While recognizing that frequently the foundations have lacked social awareness and outstanding leadership, have failed to anticipate educational trends, and have been opportunistic in seeking the improvement of higher education, the author suggests that with increasingly large and diversified sources of revenue the foundations may do even more for higher education in the second than in the first third of the twentieth century.

CARTER V. GOOD
University of Cincinnati

Annuaire International De L'Education Et De L'Enseignement: Information Generale et Statistique fournie par les ministeres de L'Instruction Publique (Geneva, Switzerland: Bureau International D'Éducation, 1938), 500 pp.

The sixth annual report of the International Bureau of Education deals with educational statistics and changes for the year 1936-37 as reported by the officials of sixty countries. In a summary of the separate reports the editors list the outstanding world trends. Among these are gradual recovery from financial restrictions, a vigorous and fast spreading spirit of educational reform, improved co-ordination of national school systems, the increasing prominence of the activity school idea, marked interest in the professional preparation of teachers, growing emphasis on health education and school sanitation, increasing intervention of the state and the central educational authorities (with certain notable exceptions), advancement of the compulsory attendance age (England to 15 years and France to 14 years), and recognition of orientation and guidance needs in the early post-primary period.

M. H. WILLING
University of Wisconsin

L'Enseignement Des Langues Anciennes: D'Après Les Données Fournies Par Les Ministères De L'Instruction Publique (Geneva, Switzerland: Bureau International D'Éducation, 1938), 148 pp.

From data furnished by the educational ministries of forty-five countries the Research Division of the International Bureau has prepared a very valuable report on the status of Latin and Greek in the schools. The questions raised have to do with college entrance requirements, election in the secondary schools, time allotments, changes since 1900, official regulations and examinations, purposes of instruction, breadth and content, methods, and the preparation of teachers. In all the European countries represented (Russia is missing) Latin takes high place in the requirements for admission to the various university faculties. Greek is required in a relatively small number of countries. The case is similar in countries colonized originally by Europeans, except the United States. In this latter country only 15 percent of the students take Latin and very few colleges make it an entrance requirement. There has been a rather marked decline the world over since 1900 in both Greek and Latin as required subjects in the secondary schools.

M. H. WILLING
University of Wisconsin

KANDEL, I. L., EDITOR. *Educational Yearbook of the International Institute of Teachers College Columbia University* (New York: Bureau of Publications, Teachers College, Columbia University, 1937), pp. xv + 583. $3.50.

This yearbook, the fourteenth in the series, reviews recent educational progress in twenty-two countries, among which the largest are India, Italy, Poland, Turkey, and Russia. The editor provides a brief introduction, but each chapter is the work of a representative educator in the country reviewed. Significant matters noted in the several reports are the extension and increasing regimentation of the youth movement, further centralization of control, the increasingly vigorous attack on illiteracy through compulsory attendance enforcement and the multiplication of elementary schools, the greater provision for post-primary and vocational education, and the tightening of the regulations governing the preparation and certification of teachers. The volume, like the previous ones in the series, is indispensable to the English reading student of foreign education.

M. H. WILLING
University of Wisconsin

HARRINGTON, MILTON. *A Biological Approach to the Problem of Abnormal Behavior* (Lancaster, Pa.: The Science

Press Printing Company, 1938), 459 pp. $4.00.

This is a rather difficult book to review, principally because the author deals with his own interpretation of the problems of abnormal behavior. The book is rather well organized, beginning with a chapter on basic concepts and methods. Part One deals with the problem of free will and animism, the problem of consciousness, and the value of the old psychology. Part Two contains 17 chapters dealing with psycho-physiology, and Part Three includes 11 chapters on psychopathology.

No well informed psychologist or psychiatrist would quarrel with the attitude of the author that the problems of abnormal behavior must be objectively studied. The author might have been less involved in pointing out the flaws in psychoanalysis, and have dwelt more on the development of his own thesis. That many of the Freudian theories have been built upon hypothesis rather than upon factual knowledge has long been known, and Dr. Harrington himself has made a good analysis and pertinent criticism of the defects in the psychoanalytical structure in a previous book.

The author writes penetratingly but unfortunately at times writes superficially on rather important topics. In chapter V, for example, about a page is devoted to the general problem of the mechanism of behavior. Nothing is said about linguistic behavior which in man is much more important than the observable chemical or muscular behavior to which the author gives much space. This is not to say that the basis of all behavior may not be chemical and muscular, but the ordinary evaluations of the physiology of glandular and muscular activity cannot solve the problem of human behavior. The reviewer takes some issue also with the author's discussion entitled "The Value of the Old Psychology" contained in Chapter IV. It is just possible that the author is somewhat confused about his concept of the old psychology. Does he mean the psychology which was in vogue in the 18th century, or does he mean the psychology that is current in American universities? He makes much of the supposed fact that an artificial barrier has been erected between psychology and physiology. I doubt very much whether that is true at the moment, except for the necessary delimitation of fields without which special emphasis in given directions could not be made. The reviewer was not able to find any new concept regarding psychology except as the author discusses psycho-physiology, a term which is extremely vague and certainly not new. Dr. Harrington's indifference to psychological research is apparent in some of his statements. For example, on page 85 the author makes much of the point that when a man's mouth waters at the sight of fine, ripe, old cheese, it is not because of any inherited tendency. I know of no freshman in college who could possibly believe that a cheese reaction is inherited. Again the brief and superficial discussion of emotion (from the middle of page 108 to page 112) may either show the author's lack of knowledge of the experimental studies or his disinterestedness in it.

Aside from these superficialities or defects, the book is a scholarly effort at the evaluation of the problems of normal and abnormal behavior. It is written in excellent style with a careful evaluation of various problems. The author makes clever use of case studies so that they are examples of subject matter and at the same time not inserted as detached material, as is done in many books. The reviewer believes that it is much better for beginning students to read a book which attempts to be objective and factual, such as this one, than popular books which at-

tempt to oversimplify all human problems.

MANDEL SHERMAN

University of Chicago

BOND, EVA. *Reading and Ninth Grade Achievement.* Contributions to Education, No. 646 (New York: Bureau of Publications, Teachers College, Columbia University, 1938), pp. x + 61. $1.60.

For some time educators have considered that progress in school is dependent in some degree upon reading proficiency. More experimental evidence on the subject is needed. In this book the author reports an investigation of the relationship between various reading skills and scholastic achievement at the ninth grade level. Three hundred pupils were measured. The technique employed in the statistical comparisons was an adaptation of the method of analysis of variance.

Ability in composite reading comprehension and in location of information were highly significant factors in composite scholastic achievement. Slow readers, however, achieved better than fast readers. This latter generalization should be accepted with reservations until further investigations are made. Valid conclusions can be deduced only when the speed of reading is measured on textual material comparable to the subject matter with which scholastic achievement is concerned. That is, speed of reading algebra should be compared with algebra achievement, etc. We already know that speed of reading literary materials bears little relation to speed of reading science or any other textual material that is not similar in content. Apparently speed of reading is to a large degree a specific rather than a general trait.

Varying degrees of relationship were found between the several aspects of reading measured and each of the different ninth grade subjects. The reading abilities were more intimately associated to achievement in the literary areas than to achievement in other areas. Skill in work-study techniques such as locating information, however, was closely related to achievement in algebra and general mathematics. There was no indication of a minimum essential in reading ability for successful ninth grade school work. Indications are that any increase in reading proficiency will be reflected in scholastic achievement.

Educators should be thankful for this highly commendable piece of research. It was clearly conceived and concisely executed. The results are, for the most part, unequivocal. The desirability of maintaining an effective level of reading proficiency at the higher grade levels is clearly demonstrated.

MILES A. TINKER

University of Minnesota

WERT, JAMES E. *Educational Statistics* New York: McGraw-Hill Book Company, Inc., 1938), pp. xii + 305. $3.25.

The number of textbooks in this field has become large enough that a new one must exhibit points of excellence not found in previous ones in order to justify its appearance. The volume being reviewed has met this criterion. The style of presentation is unusually direct and clear and should appeal to the non-mathematically trained reader. This clarity is helped by the introduction, which presents explanations and other material that should aid the student in getting a proper viewpoint for beginning his work. In addition to exercises of the ordinary computation variety, there are numerous others which require interpretation, an especially praiseworthy feature of the book. Moreover, the selection of content is, on the whole, appropriate for a beginning course in this field.

Among the minor good points that deserve mention are the treatments of class

limits, most of the suggestions concerning tables, the pointing out of the distinction between the median and the mid-score, and the explanation of the application and interpretation of errors.

In contrast with these several good major qualities and the various minor ones, a number of points have not been satisfactorily cared for. The author does not mention that the base lines of graphs on which the scale does not extend entirely to zero should be broken to indicate the omission: he also leaves the ends of frequency polygons and smooth curves "up in the air" rather than bringing them down to the base line and he fails to extend these types of curves, and also gives, to the limits of the proper glasses. Although in general his treatment of class intervals and limits is satisfactory, he occasionally gives a distribution in which the upper limit of each class is recorded as the same as the lower limit of the class below it. The use of G. M. for both guessed mean and geometric mean is liable to cause confusion and the first example given in the text to illustrate the geometric mean is of a quite unusual and unreal type. The method suggested for quantifying descriptive units is easier than the generally accepted method, but not so valid. In several places as, for example, on pages 20 and 170, general statements not fully true are to be found. Apparently they were used in the interests of simplification. One or two unusual symbols are used without sufficient reason and also at least two are employed without explanation. The classification of tests as to purposes as aptitude, achievement, and personality is scarcely logical. The use of the method of least squares as the preferred one for computing regression equations is out of accord with general practice and for those with limited mathematical training is probably more difficult. For the same group of readers the use of logarithms elsewhere than where necessary is undesirable.

Although on the whole the content is well chosen, there are several omissions that appear rather unfortunate. Among these are the cartoon graph and the formula for computing an approximate mode. The distinction between errors of measurement and errors of sampling is not made clear, nor is the effect of the relationship of the size of sample to the size of the total population mentioned. Although one or two relatively unusual methods of computing the coefficient correlation are included, the common Ayres method is not given, and the material on the interpretation of the coefficient is very scant. The limitations of the standard error of measurement are pointed out, but no suggestion is made that for certain purposes a better measure may be secured by dividing it by the mean or the standard deviation. The discussions of index numbers and of curve fitting above the first degree are too brief and condensed to be very helpful. Probably these topics should be omitted from an elementary treatise.

C. W. ODELL
University of Illinois

KELLEY, TRUMAN LEE. *The Kelley Statistical Tables* (New York: The Macmillan Company, 1938), 136 pp. $4.50.

This handsomely printed volume is addressed primarily to the professional statistician or advanced student of statistics. It includes seven tables, as follows: (1) A table of values of abscissae (x), ordinates (z), $\sqrt{pq}$, $\sqrt{1-p^2}$, and $\sqrt{1-q^2}$, corresponding to given areas (p) under the unit normal curve. The areas extend from .0000 through .9999, in intervals of .0001; ten additional values of p (through $p = .99999\ 9999$), with corresponding values of x, z, etc., are also presented. The values of the tabu-

lated entries (x, z, etc.) are presented uniformly to eight decimals, except in the terminal portion of the table. This first table covers 101 of the total 120 pages in the volume devoted to tables. (2) A four-decimal table of values of P corresponding to χ^2. (3) Ten-decimal cubic interpolation coefficients, (4) ten-decimal quintic interpolation coefficients, and (5) eleven-decimal septic interpolation coefficients; these three tables are designed to facilitate interpolation without the use of differences (the higher-order coefficients being employed, in general, when greater accuracy is desired). (6) Eight-decimal square roots of numbers from 1 through 1000. (7) Fifteen-decimal values of selected constants (such as π, e, $\sqrt{2}$, etc.), together with their logarithms to an equal number of decimals. A brief discussion is offered concerning the construction and use of the tables.

Our reaction to Professor Kelley's contribution must be, first and last, one of gratitude for an enormous task accurately and competently completed. Some questions or critical comments nevertheless persist. Why do calculators so often prepare tables with the interval of argument and the decimals in tabulated entries so indiscriminately uniform? In Kelley's Table I, for instance, the difference between successive tabulated values of x in the region of $p = .9990$, is over a hundred times larger than in the region of $p = .5000$; yet in both regions, the interval of argument, as well as the number of decimals in the tabulated values of x, remains inflexibly the same. In the present case, this implies much less accurate (or much more difficult) interpolation for values of x in the terminal than the initial part of the Table. *Sectional* uniformity in the interval of argument, and in the number of decimals in tabulated entries is, of course, necessary to facilitate interpolation; complete uniformity throughout an entire lengthy table, however, seems to the present reviewer generally unwise. Readers requiring values of x for high values of p should perhaps have their attention called to the table by Conrad and Krause (J. Exp. Educ., March, 1937), or the more recent one by Krause and Conrad (J. of Psychol., March, 1938); beyond $p = .9999$, both these tables proceed by a smaller interval than (and extend somewhat beyond the limit of) Kelley's Table I.

Like Table I, the tables of cubic, quintic, and septic interpolation coefficients represent genuine contributions. One could wish, however, that the table of septic coefficients (covering one page) were as generously detailed as the table of cubics (covering ten pages). The present writer cannot agree with the view to which uncritical reading of Kelley's page 1 easily leads; namely, that the availability of these interpolation coefficients renders superfluous the printing of tabular differences with the table of a function. The differences are very convenient, first, in determining whether cubic, quintic, or septic (or even higher) coefficients should be employed to attain the degree of accuracy required (within the limits of accuracy of the original table). Differences (or an altogether different set of interpolation coefficients) are also essential for interpolation at either extreme of a table. Finally, calculation by differences can serve as a very useful check on calculation by means of the tabled function and the interpolation coefficients.

Lack of space forbids comment on the remaining tables in the book, all of which, however, are up to the high standards conspicuous throughout the volume. Professor Kelley and the Macmillan Company deserve congratulations for a useful and distinguished contribution in this field.

HERBERT S. CONRAD
University of California

RINSLAND, HENRY DANIEL. *Constructing Tests and Grading in Elementary and High School Subjects* (New York: Prentice-Hall, Inc., 1937), pp. xvi + 323. $2.85.

By far the larger portion of this book is devoted to specimens and illustrations of single objective test elements and of short objective tests with relevant suggestions and comments. The many examples given make it one of the few largest single sources of such material and as such it will undoubtedly be frequently consulted by many teachers and others. The statements of principles and the discussions of various matters connected with testing and marking are, in general, quite direct and clearly stated, and should be understood with little difficulty. A rather unusual and distinctly helpful feature is that the author presents examples of both poor and good test elements with comments which point out why the latter are better. In some cases, however, only poor examples are given whereas it would seem better in all cases to include good ones also.

There are two rather fundamental unfavorable criticisms which the reviewer wishes to offer. One is that both the examples and the discussion are primarily concerned with the relatively mechanical aspects of measurement, and with the testing of memorized, factual material rather than with the objectives which should underlie measurement, and with the testing of those mental processes which, especially in the high school, are coming to be more and more accorded a place of prime importance. The second of the criticisms referred to is that the author seems to condemn the essay or discussion examination to a position of little or no importance. Until objective tests are devised which will measure achievement of certain sorts far better than they do at present, it appears that the essay examination is needed.

Some minor points in which the reviewer believes the volume could be improved may also be mentioned. Considerable attention is given to an R scale for use in marking, but this is so similar to the already well known T and Z scales and possesses so little, if any, advantage over them that its introduction seems unjustified. Moreover, it is expressed in terms of 100 points and because of the many misconceptions connected with the 100 point percent marking system, it seems to the reviewer desirable to avoid employing this same number. Despite the large number of examples, some of which present original forms, several types of fairly frequent use and some merit are omitted. Among these are the multiple answer test with more than one correct answer and the alternative test with a third possibility. A number of those classed as miscellaneous could well be included under the previously discussed chief types. The discussion dealing with the criteria of a good examination is decidedly brief and weak. In portions of the book the absence of a sufficiently critical attitude is apparent.

In conclusion, the reviewer believes that if used in class with the proper critical supplementation by the instructor this volume should be decidedly useful to students preparing to teach. Likewise teachers in service who are sufficiently well grounded in the field of educational measurements to be familiar with many of the attitudes and principles not presented in this book will find it helpful as a source of new ideas of objective test construction. It does not, however, appear to merit strong recommendation as a sole guide or source for the individual who needs to construct tests.

C. W. ODELL
University of Illinois

STRATEMEYER, CLARA. *Supervision in German Elementary Education 1918-1933.* Contributions to Education, No. 734 (New York: Bureau of Publications, Teachers College, Columbia University, 1938), pp. vi + 172. $1.85.

Most of the books that have been published dealing with European education discuss administrative and financial aspects of the several systems. It is indeed significant that there has appeared a book dealing with the supervision of instruction in one of the leading countries of Europe. Ordinarily one considers supervision as an American educational innovation, growing out of problems peculiar to our educational situation. Dr. Stratemeyer's book discusses supervision in Germany during three vital periods, namely the era before the World War, the period from 1918-33 during which Germany was struggling with democracy as a way of life, and the time since Hitler came into power. The contrasting practices during these three periods are vividly portrayed; the ways in which they reflect the political theories of these periods are clearly presented. Particularly interesting is the discussion of how during the period from 1918 to 1933 significant progress was made toward democratizing the school program as well as supervision in a number of the larger provinces of Germany. The various legal enactments basic to these developments are discussed and evaluated. The discussion of supervision deals with pre-service training, in-service training prior to permanent appointment, and in-service supervision after permanent appointment. Significant statements from the above book that define the general theory of democratic procedure are the following: "... the fundamental belief that an individual of proved ability could be and should be trusted in making decisions governing the actual performance of the duties assigned him." (p. 130). "Those best able to meet and solve problems are the group of workers most immediately and directly concerned with it, on the condition that they are well trained, experienced individuals." (p. 130). "A plan of coöperative group action was put into operation" (p. 131) by legal enactment, according to which the principal served merely as chairman of the group for whose actions the group itself was responsible. Dr. Stratemeyer points out that such a program was feasible because the staff involved was highly trained, carefully selected, and had demonstrated its ability prior to permanent appointment to a position during a period of probation. These points all have important implications for American education. Dr. Stratemeyer includes in the report a brief discussion of changes that have taken place in supervision since the advent of Hitler. Much of the freedom developed during the democratic era has disappeared. Changes made during the past two years are not discussed. They are taking place so rapidly that a book describing current practices is soon out-of-date.

It is evident from the above that the discussion in this volume is primarily concerned with the improvement of the work of the teacher. There is no consideration of such topics as means used to evaluate the educational product, means used to determine the reasons for the deficiency of this product, steps that are taken to appraise the curriculum, materials of instruction, and general conditions in the environment, or of methods of improving these elements in the teacher-learning situation. This is probably due to the fact that German education does not utilize such specific procedures for studying and improving the total program. They repre-

sent the unique contribution of American education to supervision. Of special interest to American educators is the final chapter dealing with interpretations and recommendations for improving the selection, training, and certification of our teachers. This report based on a first-hand study of practices and an analysis of source materials is well worth careful scrutiny.

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RESEARCH ABSTRACTS and BIBLIOGRAPHIES

Address all communications relative to research abstracts and bibliographies to A. S. Barr, University of Wisconsin, Madison, Wisconsin.

BULLETINS

ADE, LESTER K. *Safety Education in Industrial School Shops,* Bulletin 332 (Harrisburg: Department of Public Instruction, Commonwealth of Pennsylvania, 1938), 87 pp.

This bulletin reviews studies previously made in the field of safety education, and presents the procedure, methods employed, and results of a study in this field with recommendations for a safety education program. Selected bibliography.

CAMPBELL, DOAK S., BAIR, FREDERICK H., AND HARVEY, OSWALD L. *Educational Activities of the Works Progress Administration,* Staff Study Number 14 Prepared for The Advisory Committee on Education (Washington: United States Government Printing Office, 1939), 185 pp.

This bulletin discusses the background, the general scope, program content, division of education projects, and general evaluation of the educational activities engaged in by the Works Progress Administration.

CARR, WILLIAM G., AND OTHERS. "The Rural Teacher's Economic Status," *Research Bulletin of the National Education Association,* XVII, No. 1 (Washington: National Education Association, January, 1939), 61 pp.

The authors present a survey of the economic status of the rural teacher regarding school salaries and other income, the uses of income, value of property and extent of indebtedness, what rural teachers think about their economic status; and discuss ten outstanding points and their significance.

COCKING, WALTER D., AND GILMORE, CHARLES H. *Organization and Administration of Public Education,* Staff Study No. 2, Prepared for The Advisory Committee on Education (Washington: United States Government Printing Office, 1938), 183 pp.

This study attempts to present a cross section of the present organization and administration of the school systems in the United States through the following topics: the development of the organization and administration of public education, the legal boundaries of public education, place of education in the structure of government, state administration of education, local administration of education, interrelationships of local, state and federal governments, characteristics of educational organization and administration in the states and local units, and suggested improvements of state and local organization and administration of education. Bibliography.

CRIST, ALICE L. "The Ohio State Cooperative Testing Program in Nursing Education," *Educational Research Bulletin,* XVIII, No. 2 (Columbus: College of Education, Ohio State University, February 1, 1939), 10 pp.

The author discusses the procedure employed in the development of measuring instruments to be employed in nursing education.

DIVISION OF EDUCATIONAL REFERENCE, "Proceedings of the Fourth Annual Guidance Conference," *Studies in Higher Education*, XXXV (Lafayette: The Division of Educational Reference, Purdue University, February, 1939), 102 pp.

This bulletin is devoted to the proceedings of the fourth annual guidance conference held at Purdue University November 25 and 26, 1938.

EVANS, ROBERT O. *Practices, Trends, and Issues in Reporting to Parents on the Welfare of the Child in School* (New York: Bureau of Publications, Teachers College, Columbia University, 1938), 98 pp.

This study aims to bring together materials and suggestions which school people may find helpful in developing more effective programs of reporting on the welfare of the child by presenting a wide variety of practices, revealing recent trends and considering the many issues involved and the formulation of principles upon which an ideal program may be built.

GREENE, HARRY A., CHAIRMAN. "Educational Tests and Their Uses," *Review of Educational Research*, VIII, No. 5 (Washington: American Educational Research Association, December, 1938), 94 pp.

This issue of the *Review of Educational Research* deals with the construction and use of tests which evidence pupil growth in abilities, and contains discussions on: studies of educational achievement, educational prevention, diagnosis, and remediation, the essay-type test, the improvement of classroom testing, developments in test scoring and analysis, the educational measurement movement in perspective, and recent literature on testing. Bibliography. List of members. Index to Volume VIII.

GRIMES, JAMES W., AND BORDIN, EDWARD. "A Proposed Technique for Certain Evaluation in Art," *Educational Research Bulletin*, XVIII, No. 1 (Columbus: College of Education, Ohio State University, January 4, 1939), 6 pp.

The authors present a check list as an aid to certain evaluations in art.

HOLY, T. C., AND CHURCH, H. H. *Comparison of Costs per Pupil in Average Daily Attendance in Ohio City and Exempted Village School Districts from July 1, 1937, to June 30, 1938* (Columbus: Bureau of Educational Research, Ohio State University, January, 1939), 22 pp. Mimeographed.

This report presents an analysis of the current expenses and total operating costs per pupil in average daily attendance in 108 cities and 67 exempted villages in the state of Ohio for the school year 1937-38.

ANONYMOUS, *Bulletin of the International Bureau of Education*, XII, No. 49 (Geneva: International Bureau of Education, October, 1938), 49 pp.

This issue of the Bulletin is devoted to an inquiry on the salaries of secondary school teachers, the educational world, education for peace and international coöperation, and activity of the bureau for the third quarter of 1938. Bibliography.

MILLER, CAREY D. "A Study of the Dietary and Value of Living of 44 Japanese Families in Hawaii," *University of Hawaii Research Bulletin*,

No. 18 (Honolulu: University of Hawaii, December, 1938), 27 pp.

The author reports a study of the dietary and value of living of 44 Japanese families in Hawaii by discussing the income, the value of family living, the dietary, and makes recommendations for improving the diet of the typical Japanese family in Hawaii, and offers suggestions for further research. Bibliography.

MacLean, Murdoch C. "Illiteracy and School Attendance," *Bulletin of the Dominion Bureau of Statistics*, Reprinted from Volume XII, Seventh Census of Canada, 1931, Monograph No. 5 (Ottawa: J. O. Patenaude, I.S.O., 1937), 177 pp.

This monograph is concerned with the numbers and distribution throughout Canada of illiteracy, the underlying causes and the social and economic concomitants.

Netzer, Royal F. "The Evaluation of a Technique for Measuring Improvement in Oral Composition," *Research Studies in Elementary School Language, No. 2* (Iowa City: University of Iowa, Vol. X, No. 4, February 15, 1939), 48 pp.

In this monograph the author summarizes the results of one phase of a program of research which is designed to contribute to the solution of certain problems of content and methods of instruction in elementary school language.

EDUCATIONAL ADMINISTRATION AND SUPERVISION

Beery, John R. "Who Goes to College," *Educational Administration and Supervision*, XXV (January, 1939), pp. 25-36.

The author reviews studies relating to the differences between high-school graduates who go to college and those who do not and concludes that the reliability of prediction of probable college attendance on the single basis of intelligence increases as one approaches either extreme of the intelligence range.

Corey, Stephen M., and Beery, George S. "The Effect of Teacher Popularity Upon Attitude Toward School Subjects," *The Journal of Educational Psychology*, XXIX (December, 1938), pp. 665-670.

Data gathered from two inquiries made of one hundred fifty-two university students at the beginning of their freshman year seem to indicate that when neither the subject nor the teacher was liked only five percent of the students elected to continue the subject in college.

Curtis, Francis D. "The Fifty 'Best' Published Investigations in the Teaching of Science for the Years 1931 to 1937 Inclusive," *Science Education*, XXII (November, 1938), pp. 279-282.

On the basis of rankings given articles included in an extensive bibliography by members of the National Association for Research in Science Teaching, the author presents a bibliography of the fifty "best" articles so chosen.

Koos, Leonard V., and Collaborators. "Selected References on Secondary-School Instruction," *The School Review*, XLVII (March, 1939), pp. 210-226.

This list of selected references on secondary-school instruction contains items dealing with the subject fields of: industrial and vocational arts, agriculture, home economics, business education, music, art, and physical education; and includes the main aspects of curriculum, methods of teaching and study and supervision, and measurement.

SAMLER, JOSEPH. "The High-School Graduate and Dropout," *The Journal of Experimental Education*, VII (December, 1938), pp. 105-109.

On the basis of data gathered in 2592 interviews with dropout and graduate high-school students the author concludes that there are no noteworthy differences existing between graduates and dropouts in employment, but the adjustments of graduates are superior to the adjustments of dropouts.

CURRICULUM CONSTRUCTION

BENNETT, WALTER W. "Making Use of Motion Pictures in Teaching Science," *Science Education*, XXII (December, 1938), pp. 358-363.

The author contrasts the skillful and the laissez-faire film-teacher.

TURILLE, S. J. "Teaching Methods in Commercial Education," *Educational Administration and Supervision*, XXIV (December, 1938), pp. 693-699.

The author presents a classification of some of the principal core-subjects in the commercial curriculum, with a few of the outstanding and commonly used methods in these listed subjects.

TYLER, I. KEITH. "Recent Developments in Radio Education," *The English Journal*, XXVIII (March, 1939), pp. 193-199.

The author discusses the newer important developments in radio education and the trend toward an increasing concern in school broadcasts with a whole range of important educational objectives instead of information alone.

PSYCHOLOGY OF LEARNING AND TEACHING

BURT, CYRIL. "The Relations of Educational Abilities," *The British Journal of Educational Psychology*, IX (February, 1939), pp. 45-71.

In an effort to investigate the relations between performances in the chief branches of the school curriculum by means of more modern statistical methods, the author tested 613 ten-year-old children by standardized tests of the usual elementary subjects, and the correlations submitted to factor-analysis both by a 'group factor method' and by 'general factor methods,' with the result that whichever procedure is used, the factors reached are much the same, namely: general, verbal, arithmetical, and a manual factor.

PRIEBE, ROY E., AND BURTON, WILLIAM H. "The Slow-Motion Picture as a Coaching Device," *The School Review*, XLVII (March, 1939), pp. 192-198.

On the basis of data gathered in a control experiment the authors conclude that the use of slow-motion pictures in coaching the high jump made for faster progress and better achievement, and it eliminated to a large extent, the initial period of trial and error.

PUPIL GUIDANCE, WELFARE AND DEVELOPMENT

LAWTON, GEORGE. "A Preliminary Study of Questions Which Adolescents Find Unanswerable," *The Journal of Experimental Education*, VII (December, 1938), pp. 99-104.

The purpose of this study is to present the chief types of questions of adolescents as a class, and to determine whether the kind of question changes from year to year throughout the adolescent period.

WALLIN, J. E. WALLACE. "What Teachers Think About the Value of Mental Hygiene Courses," *Educational Administration and Supervision*, XXIV (December, 1938), pp. 675-686.

On the basis of data gathered from eighty-five students pursuing a course on personality maladjustments and mental hygiene, the author concludes that teachers consider courses in mental hygiene of great value.

STATISTICS, MEASUREMENTS, AND SCIENTIFIC TECHNIQUES

HEDMAN, HATTIE BAITY. "A Critical Comparison Between the Solutions of the Factor Problem Offered by Spearman and Thurstone," *The Journal of Educational Psychology*, XXIX (December, 1938), pp. 671-685.

This article examines critically some of the major claims set forth in factorial analysis as applied to psychology and shows that the basic principles employed, however, are identical, in that Spearman's formula for determining the "correlation of sums" and Thurstone's method of extracting "first factor loadings" are shown to be identical.

HEIL, LOUIS M. "Evaluation of School Broadcasts in Science," *Science Education*, XXIII (January, 1939), pp. 1-4.

The author discusses the Ohio State University Project in School Broadcasting as it applies to Science.

MERRILL, MAUD A. "The Significance of I.Q.'s on the Revised Stanford-Binet Scales," *The Journal of Educational Psychology*, XXIX (December, 1938), pp. 641-651.

The author discusses the problem of interpreting I.Q.'s obtained on the revised Stanford-Binet scales which is the problem of attaching diagnostic terms to measurable differences in intelligence.

NEW TESTS

Workbook in Statistical Method: With Special Reference to the Social Sciences, by Jack W. Dunlap. New York: Prentice-Hall, Inc., 1939.

This workbook is designed as an aid in developing a functional and integrated knowledge of the subject by giving some computation, some assumptions and derivations, and opportunity for the interpretation of results.

The Chicago Reading Tests, by Max D. Engelhart and Thelma Gwinn Thurstone. Milwaukee: E. M. Hale and Company, 1939.

The reading tests are designed for the following ranges of school grades: Test A for first and second; Test B for second, third, and fourth; Test C for fourth, fifth, and sixth; and Test D for sixth, seventh, and eighth. Three forms of each test. Reliability and validity high. Norms and age and grade equivalents available. Manual of directions.

Gates Reading Survey for Grades 3 to 10, by Arthur I. Gates, New York: Bureau of Publications, Teachers College, Columbia University, 1939.

The Reading Survey is designed to measure four fundamental aspects of reading ability as follows: knowledge of word-meanings or vocabulary, comprehension, speed of reading, accuracy of comprehending. Two forms. Intercorrelations average .62 and the self-correlations about .90. Manual.

The Chicago Arithmetic Survey Tests, by J. T. Johnson, Milwaukee: E. M. Hale and Company, 1939.

The arithmetic tests are designed for the following ranges of school grades: Test A for grades three and four includes problems in number meaning, addition, subtraction, multiplication, division, measurement, and reasoning; Test B for grades five and six is similar except that

it excludes number meaning; Test C for grades seven and eight includes problems in fundamental operations, common fractions, decimals, reasoning and graphs. Norms for grade placement. Manual of directions.

What Should Our Schools Do? A Poll of Public Opinion on the School Program, by Paul R. Mort, F. G. Cornell, and Norman H. Hinton. New York: Bureau of Publications, Teachers College, Columbia University, 1938.

This instrument was developed for the purpose of determining the extent to which parents and teachers are willing to accept newer practices in education, and in connection with a study of the adaptability of public school systems, made under the auspices of the Columbia University Council for Research in Social Sciences. Reliability .91. Norms. Manual of directions.

Test of Critical Thinking in the Social Studies: Elementary School Series, by J. Wayne Wrightstone. New York: Bureau of Publications, Teachers College, Columbia University, 1938-39.

This test is designed to measure pupil growth in three aspects of critical thinking, namely: obtaining facts, drawing conclusions, and applying general facts. Coefficients of validity .87, of reliability .80 —.95. Two forms. Norms. Manual of directions.

RESEARCH NEWS and COMMUNICATIONS

Address all research news and communications to Carter V. Good, Teachers College, University of Cincinnati, Cincinnati, Ohio.

Yearbooks of 1938 and 1939.—This year and last year are unusual in the number of significant educational yearbooks produced. Most of them have been described in earlier numbers of this department. At this time space permits no more than mention of these contributions of 1938 and 1939: American Association of School Administrators, *Youth Education Today* and *Schools in Small Communities;* Department of Classroom Teachers, *Fit to Teach: A Study of the Health Problems of Teachers,* and with the American Educational Research Association, *The Implications of Research for the Classroom Teacher;* Department of Elementary School Principals, *Newer Practices in Reading in the Elementary School* and *Enriching the Curriculum for the Elementary School Child;* Department of Rural Education, *Newer Types of Instruction in Small Rural Schools;* Department of Supervisors and Directors of Instruction, *Cooperation: Principles and Practices;* John Dewey Society, *Educational Freedom and Democracy* and *Democracy and the Curriculum;* National Council for the Social Studies, *The Contribution of Research to the Teaching of the Social Studies* and *Utilization of Community Resources in the Social Studies;* National Council of Teachers of Mathematics, *The Nature of Proof;* National Society for the Study of Education, *Guidance in Educational Institutions, The Scientific Movement in Education, Child Development and the Curriculum,* and *General Education in the American College;* and National Society of College Teachers of Education, *Approaches to the Study of College Instruction.*

Outstanding Research.—The Committee on Awards was created by the American Educational Research Association at its meeting on February 20, 1937. Following the procedure indicated in the resolution approved by the Association, nominations of outstanding researches were secured from the members of the committees which prepared the five numbers of the *Review of Educational Research* for 1937. Supplementary nominations were solicited from a number of other persons. Each of the final lists of nominations was submitted to about twenty persons for evaluation according to instructions prepared by the Committee on Awards. In addition, each piece of research nominated was examined by one or more members of the Committee. The Committee consists of Carter Alexander, Bess Goodykoontz, and Walter S. Monroe, Chairman.

The award in the field of the curriculum is:

Wrightstone, J. Wayne. *Appraisal of Newer Practices in Selected Public Schools.* New York: Teachers College, Columbia University, 1935. Pp. 117.

Wrightstone, J. Wayne. *Appraisal of Experimental High School Practices.* (New York: Teachers College, Columbia University, 1936), pp. 194.

These studies are significant as a pio-

neering effort to evaluate results of teaching that are not adequately measured by conventional tests and examinations. The findings are convincing and the measurement technics developed should lead to a more satisfactory evaluation of curricula and instructional procedures.

The award in the field of school organization is:

Edwards, Newton. *The Courts and the Public Schools.* (Chicago: University of Chicago Press, 1933), pp. 591.

A scholarly compilation and interpretation of court decisions bearing upon various aspects of the public schools. The author is the first to present such a comprehensive review of court decisions. The usefulness of the volume is enhanced by a wise organization, a detailed table of contents, and an index.

The award in the field of special methods and psychology of the elementary-school subjects is:

Hardy, Martha C., and Hoefer, Carolyn H. *Healthy Growth.* (Chicago: University of Chicago Press, 1936), pp. 360.

Care in planning, thoroughness of procedure, and application of the "longitudinal" method of research have made this an outstanding study. After two years of preliminary study of the local situation, a five-year controlled experiment was organized for the purpose of ascertaining the effects of certain health instruction procedures. Elaborate data were collected. The findings support the conclusion that the program of health education as planned by the authors was highly successful.

Research Encyclopedia.—At the annual meeting of the American Educational Research Association on February 27, 1939, affirmative action was taken on the proposal that the Encyclopedia of Educational Research be published under the sponsorship of this organization. This action will give the work added prestige and removes the final obstacle in arranging for publication. The Macmillan Company has made an offer to publish the work, and the action by the Research Association included a provision for the acceptance of this proposal. It is planned that the work will be published in one volume of one million words. If there is no unexpected delay in the completion of the manuscripts, the Encyclopedia should be available by January, 1941. In addition to W. S. Monroe of the University of Illinois, who is in active charge of the project, the advisory editorial board includes: Carter Alexander, Columbia University; W. W. Charters, Ohio State University; Frank N. Freeman, University of Chicago; Charles W. Knudsen, Peabody College for Teachers; J. Cayce Morrison, Chairman, State Department of Education, New York; and Douglas E. Scates, Cincinnati Public Schools.

Bibliographical Index.—Students, research workers, and librarians will welcome the 344 page, first cumulated annual volume of *The Bibliographic Index* (a cumulative bibliography of bibliographies) which provides references, conveniently arranged under standard subject headings, to some 14,000 bibliographies published during 1937 and 1938. Three quarterly numbers and a cumulated volume are published each year by H. W. Wilson Co. There will also be a five year cumulated volume.

Regents' Inquiry.—The Regent's Inquiry into the Character and Cost of Public Education in the State of New York is now available in published form. The work of the Inquiry has been divided into three major undertakings: first, the examination of the educational enterprise of the State and the analysis of its outcomes, methods, and costs; second, the

critical appraisal of the work now under way; and third, the formulation of policies and programs for dealing with the immediate problems and issues, and long-range objectives of the educational system of the State. The purpose of the Inquiry has not been to gather great masses of statistics, to devise numerous questionnaires, or to present meticulous factual descriptions of every phase of education within the State. Rather, the Regents' Committee and the staff of the Inquiry have been interested in isolating major issues and in working at the problems which presented themselves, in order to find a reasonable comprehensive solution which would commend itself to the forward-minded people of the State of New York. Though the policies and problems discussed in the volumes named below directly concern public education in New York State, the issues dealt with by the Inquiry are central to modern education.

The published reports are: Luther H. Gulick's summary, *Education for American Life;* Francis T. Spaulding, *High School and Life;* Charles H. Judd, *Preparation of School Personnel;* Alonzo G. Grace and G. A. Moe, *State Aid and School Costs;* F. W. Reeves, T. Fansler, and C. O. Houle, *Adult Education;* Elizabeth Laine, *Motion Pictures and Radio;* Ruth Eckert and Thomas O. Marshall, *When Youth Leave School;* Howard E. Wilson, *Education for Citizenship;* Thomas L. Norton, *Education for Work;* C. E. A. Winslow, *The School Health Program;* and J. B. Maller, *School and Community.*

Minnesota Studies.—The University Committee on Educational Research of the University of Minnesota, of which T. R. McConnell is chairman, has the following studies of educational problems within the University under way for the year, 1938-39.

Curriculum Study in Social Work Education.—The purpose of this investigation is to provide a basis for the evaluation and reorganization of the social work courses in the University. The main divisions of the project are: (1) a job analysis of the activities of some 1200 or more social workers employed by government units in the State of Minnesota; (2) an evaluation by social workers in service of the present training program in the department; and (3) an investigation of the attitudes of social workers toward social issues which impinge upon their activities.

Curriculum Study in Dental Hygiene.—The primary purpose is to provide data for determining the length and character of the curriculum for dental hygienists in the College of Dentistry. The principal part of the study undertaken during the present year is a job analysis of dental hygienists in the several fields open to graduates of the curriculum and an evaluation by dental hygienists and employers of the adequacy of training for the functions which hygienists perform.

Curriculum Study in Food Technology in the College of Agriculture, Forestry, and Home Economics.—This project will include the following phases: (1) determination of the food industries in Minnesota and other states which require the services of food technologists; (2) specifications by the industries concerned of qualifications demanded of food technologists; (3) survey of curricula for training food technologists in institutions in this country and abroad; and (4) evaluation of the present offerings of the University.

A Comparison of the Effectiveness of Laboratory and Non-Laboratory Instruction in Freshman Composition in the College of Science, Literature, and the Arts.—During 1937-38, a scale for the measure-

ment of student expository writing was devised and its validity and reliability determined. During the present year, this instrument and other measurement devices will be used to determine the relative effectiveness of laboratory and non-laboratory sections of Freshman English.

Relative Efficiency of Comprehensive and Course Examinations for the Guidance of Pharmacy Students.—This project is in part an extension of the prediction study recently conducted in the College of Pharmacy by the Board of Admissions. It is proposed to determine the value of comprehensive examinations as a new criterion for prediction and also to develop predictive indices for differentiated curricula in Pharmacy.

Curriculum Evaluation in the General College.—The University Committee, in coöperation with the research staff of the General College, has set up an evaluation program for four new core curriculum areas in the General College: Vocational Orientation, Individual Orientation, Home Life, and Socio-Civic Orientation. In general the purposes of this program are to determine the extent to which the objectives set up for these courses are attained and the relative effectiveness of several curricular and instructional practices in stimulating desired outcomes.

The Articulation of Secondary and Higher Education.—This is a project the purpose of which is to stimulate exceptional high school students to prepare for examinations regularly administered in selected introductory lower division courses of the University. When these students enter the University, it is proposed to give special attention to the organization of their programs in the light of the level of achievement which they have demonstrated.

The two following studies may also be undertaken: 1. An investigation of the extent to which students in the Orientation course in College of Science, Literature, and the Arts are able to apply the facts and principles developed in the course to the management of personal affairs and evaluation of current social problems.

2. An investigation of the teaching load of staff members of the University with the purpose of providing a complete picture of faculty service which would not only include instruction but also research, advising of students, committee participation, and other types of administrative service, public contacts, etc.

Studies at Indiana University.—Two studies in education, entitled "The Relation of Accuracy to Speed in Addition" and "A Study of Bilateral Transfer" were published in March, 1938, and three other studies have been reported at the annual conferences on educational measurements and are printed in the proceedings of the 1937 and the 1938 conferences. These deal with "The Content of a Course in the Introduction to Education," "An Analysis of Efficiency in Addition," and "The Value of the Dictaphone in Diagnosing Difficulties in Addition."

The School of Education has continued its work in the field of bibliography and has compiled two bibliographies during the year. One of these, a "Bibliography of Literature on Education in Countries Other Than the United States of America" (from January 1, 1919, to December 31, 1924), contains 1,243 references and is supplementary to a bibliography of more recent references on the same subject that was published in March, 1937. The second one is a supplement to the "Bibliography of School Surveys and of References on School Surveys," published in 1931. It lists more than 3,000 school surveys and 1,325 references on the subject which have been published up to December 31, 1937.

A number of research projects are in progress at the present time. In the field of bibliography, supplements are being prepared to both the "Bibliography of Literature on Education in Countries Other Than the United States of America" and the "Bibliography of Literature on the Teaching of English." Both supplements will contain references of an earlier date than those in the present bibliographies. In the field of tests and measurements, tests in first- and second-year Latin, plane geometry, and first-year algebra have been developed for each semester, as usual, for the State High School Testing Program. A study is being made of the relationships between teachers' ratings and growth test scores, and an aptitude test is being developed for admission of candidates to schools of education and teacher training institutions.

Three studies are in progress in the field of finance: state control in public school finance, distribution of state school funds in Indiana, and the actions of tax review boards in Indiana. In the field of methods of teaching and learning the following studies are being undertaken: methods of teaching fractions and decimals; development of techniques for group analysis in fundamentals of arithmetic; efficient methods of teaching fundamentals of arithmetic; the relation of retention to speed of learning; an attempt to get a starting place for initial vocabulary burden; the development of content and teaching method for a course in psychology for elementary teachers; the effect of remedial reading instruction on college freshmen; word recognition methods used in elementary schools; number of repetitions required to fix words in first grade reading, both in context and in isolation; and a study of reading, and one of techniques of supervision, both of which are follow-up studies of the Monroe County school survey.

In physical education six investigations are being made: determination of standards for physical education in the State of Indiana; determination of standards for physical education for the Mid-West Section of the American Association of Health, Physical Education, and Recreation; a study of weighting elements in the Rogers Strength Test; a revision of the Indiana State Course of Study in Physical Education for boys and girls in the secondary schools; a study of a revised method of scoring chinning and dipping in the Rogers Strength Test; and the improvement of existing means for classifying boys for physical education.

Three departmental studies are being made: the overlapping of courses in the School of Education, Indiana University; an evaluation of the elementary teacher training course at Indiana University; and a study of the success of Indiana University graduates of elementary and secondary teacher training curricula, 1936 and 1937, as evidenced by reports of school employing officials.

Among the other studies being made are the following: levels of English usage; prognostic study of elementary teachers; grade progress study of elementary pupils who have received all their training in the same school; five-year study of subject combinations used in Indiana high schools; personal, social needs of high school pupils as a basis for curriculum construction in the social studies; and windows for use in school buildings.

Grade Adjustment in Boston.—A current study made by the Department of Educational Investigation and Measurement of the Boston Public Schools has been instrumental in influencing the action of the School Committee of this city

in making a chronological age of 4 years and 6 months a requirement for entrance to kindergarten. The study followed, over a period of four years, 671 children who before entering kindergarten in the school year 1934-35 were tested with the Stanford Binet Test. Of this number, 306 had mental ages of 4 years and 6 months or over, while 365 were mentally below that age. Test results were not sent to the schools and consequently influenced in no way the promotion or retardation of the children. Grade progress was the result of actual achievement, as measured by teachers' judgment, aided by standardized achievement tests in reading and arithmetic.

The follow-up, which each year reported a percentage of retardation in both groups, showed at the end of the four-year period that 80 percent of the children who tested mentally above 4 years and 6 months progressed normally from grade to grade. Ten percent of these children were reading below grade in Grade 3 when the Gates Silent Reading Test (Grades 3-8) was given city-wide. It showed, furthermore, that only 26 percent of the children who entered kindergarten with a mental age under 4 years and 6 months had progressed without repetition. Of that number less than one half were reading up to grade when measured in Grade 3 by the Gates Silent Reading Test (Grades 3-8). The results of this study are considered significant for pupil adjustment under the present school organization.

Another department study reiterated the need for information regarding mental age for proper school adjustment. This was an age progress study made in Grades 6 and 9 on the basis of mental rather than chronological age. The study was made from results of approximately 10,000 National Intelligence Tests and 7,000 Terman Group Tests of Mental Ability which were given city-wide to pupils of Grades 6 and 9 respectively. The tests were given during the last week of October when the grade mental ages as computed by the department were 10 years and 8 months in Grade 6, and 13 years and 8 months in Grade 9.

The study was made on the assumption that a mental age equal to 90 percent of the grade mental age is necessary for success in any given grade. This means that a pupil in Grade 6 with a mental age below 9 years and 7 months is unable to succeed in the work of the grade, while in Grade 9 failure is imminent unless there is a mental age of at least 12 years and 4 months. The conclusion was that such children were maladjusted in a sixth grade or in a ninth grade adhering to a standard curriculum. Furthermore, it was assumed that a pupil with a mental age over 120 percent of the grade age (other things being equal) is unnecessarily retarded in a grade adhering to a standard curriculum. Hence, for a sixth grade pupil who, at the time of the testing, had a mental age above 12 years and 10 months or a ninth grade pupil with a mental age above 16 years and 6 months, provision should be made in a higher grade or in a differentiated school.

Comparison of this study with the last age grade progress study, made on the basis of chronological age, showed, in Grade 6, 25 percent of maladjustment in the former against 59 percent in the latter, while in Grade 9 it showed 27 percent of maladjustment against 55 percent. Studies of standardized achievement test results and follow-up indicate the largest percentage of low achievement and unnecessary school mortality among pupils in schools which show the greatest percentage of grade maladjustment.

The director of the Department is Ella L. Bresnehen.

Cleveland Projects.—The services rendered by the Cleveland Bureau of Educational Research for the year 1938-39 may be summarized under the headings of: group mental tests and educational tests, curriculum work, and community services.

The chief purpose of the group mental tests is to help administrative officers classify pupils into ability groups, so that the individual needs of pupils may be met through differentiated curricula; to single out exceptional children; and to establish the ability status of the school population. Group mental tests are administered, city-wide, in grades 2B, 4B, 6A, 8A, and 9A, once each semester. The Ohio State Intelligence Test is given to seniors in all high schools in January and June.

The chief purpose of the educational tests or testing program is to improve the work of the school. Sometimes this purpose becomes a function of the administrative department or of the supervisory department. At other times it is purely a teaching problem. The Bureau administers educational testing programs at the request of the superintendent of schools, the assistant superintendent, the supervisors, the principals, and heads of departments. Sometimes these tests are administered in the form of city-wide programs, and at other times in the form of special building and classroom testing programs.

A number of special testing programs are conducted for the following reasons: to further experimental studies, to check upon achievement in special subject fields, and to aid in forming new teaching groups. A large number of special testing programs are going forward in elementary, junior, and senior high schools at the present time. In many schools, classification programs using group mental tests are preceding achievement tests in the various subject-matter fields. Testing programs to check on achievement are requested by the assistant supervisors, principals, and teachers in charge of many of the departments of special schools. Such schools are organized to meet the needs of mental defectives, physically handicapped, and major work pupils, or high I.Q. pupils. A large number of special programs are administered in the junior and senior high schools as part of the regular testing program. The Cleveland Public Schools are organized on the 6-3-3 plan. A testing program is now being planned to be administered to all pupils entering grade 10B. This testing program will be a comprehensive examination. It will include tests in the fields of mathematics, social studies, science, English, reading, and a test of power. The nature of this last test has not yet been decided upon, but it will be in addition to the regular group mental test.

In Cleveland, as in every large public school system, emphasis shifts from one content subject field to another, in the wake of national trends. As a result problems arise concerning content and procedure. These problems are analyzed and studied by the Bureau, with the hope that satisfactory solutions may be evolved. At the present time special attention is being focused on the reading problems in the junior and senior high schools. More and more, reading ability is being recognized as a prime factor in achievement in science, mathematics, history, and the other content subjects. As a result of the findings of these studies, several of the junior high schools are experimenting with classification on the basis of reading ability, rather than classification on the basis of P.L.R. (Probable Learning Rate). P.L.R. is the term used in Cleveland to express the results of a group mental test. I.Q. is used to express the results of the Binet Test. A number of special studies of the reading problems in junior high schools are now in progress.

The largest of these is a complete building survey of the reading status of 1800 pupils in a typical junior high school. The Sullivan-Durrel Reading Test of Capacity and Achievement is being used. The Detroit Mechanical Aptitude Examination for boys is being used in one of the large technical high schools as a selective factor for the admission of pupils. The test results of a thousand cases are being carefully studied with reference to the achievements of the pupils in their first year's work, for the purpose of determining whether the Detroit Mechanical Aptitude Examination for boys can be used with any great degree of certainty as a prognostic test of technical aptitude.

The work carried on in the field of the curriculum during the school year, 1938-39, is focused upon the development of subject-matter units in science for the junior high schools, and the building of a battery of reading tests for the junior and senior high schools. The battery of reading tests for the junior and senior high schools is nearly ready for the experimental testing. The plan for the building of the tests is as follows:

That the reading tests consist of the type of reading done by the average citizen in everyday life.

That a vocabulary test be prepared from material selected by English teachers.

That a test of reading comprehension be made—the paragraphs used to be taken from the fields of science, literature, poetry, politics, economics, and sports; in fact, from all types of general informational reading matter to be found in newspaper and magazine articles and editorials, and fiction, non-fiction, and poetry books.

That there be enough material put into test form to insure two comparable forms of each test for the junior high school and for the senior high school.

That the form of the test be decided upon in the Bureau of Educational Research, subject to the approval of the committee.

The Cleveland Kindergarten Achievement Test has been given experimentally. It is being revised on the basis of the data which resulted from the experimental testing. The Cleveland Language Tests (Latin I, Latin II, and Latin III) have been administered in experimental form to all pupils taking Latin in the Cleveland Public Schools. From a study of the data the difficulty of the test questions has been established. The revised forms of the test will be ready for use during the current year.

Tests are given at the end of the second semester to 8A pupils in Catholic and Lutheran schools. This program facilitates the placement of such pupils in the Cleveland junior and senior high schools. It also aids principals in setting up building programs.

The chief of the Bureau is James C. Adell.

The Slow-Learning Child in Memphis.—K. W. Warden, Director of Research and Attendance in the Memphis City Schools, reports that for several years the elementary children of the Memphis Schools have been classified into homogeneous groups. During this period there was an opportunity to discover some facts about the slow-learning child. It was found that he was happier and responded better when working with children whose mental and achievement levels corresponded with his own.

At present there are ten centers for slow-learning children, those who are retarded scholastically two or more years. Most of them have an I.Q. below 80. Some, before placed in such centers, were twelve and fourteen years of age and

could not read. They had been in school, in some instances, since six years of age. By grouping these non-readers it has been possible to teach them to read. The progress of some has been remarkable. The Memphis workers are about to conclude that any child with an I.Q. above 60 can be taught to read.

In some instances these non-readers were asked to bring to school pictures of their own selection. Any picture from a magazine or daily paper was acceptable. Each child was shown how to paste his picture on either a sheet of paper or card board. Beneath the picture he was asked to write a story about the picture. Most of the children could think of many things they wanted to say, but were not able to express themselves. The teacher came on the scene and asked each child what he would like to say about his picture. After pupil and teacher had decided what was appropriate, the teacher assisted the child in writing what he desired to express. The child is encouraged to think of other things he would like to say about the picture.

It has been surprising how rapidly many of these children developed a writing vocabulary. Many were making charts and reading them to other members of the class. They also became interested in reading what other children had written about pictures. The next step was to allow several children to develop jointly a story about a picture, a pet, or some object of interest.

They were then ready to read from the primer. The progress was so rapid with a few that they went from non-reading classification to average first grade readers within a period of six weeks. They now get a genuine thrill out of this reading, and want to read to any one who will serve as an audience. The secret of the whole process seems to be one of making the children feel at ease in the presence of a learning situation, and of placing within their reach an incentive to accomplish something. The skillful teacher is, of course, the most important factor in promoting such a learning situation.

Institute for Social Progress at Wellesley.—The 1939 theme is *How Can We Make Democracy Work?* The conference is open to men and women from all vocations with a membership designed to represent a cross-section of a typical American community, and meets on the country campus of Wellesley College on Lake Waban, Mass., July 8-22. John Stewart Burgess is chairman of the faculty. Lectures, discussions, round tables, and evening forums are conducted by speakers of conflicting points of view. Coöperating organizations are the National Economic and Social Planning Association, the People's Lobby, and the Religion and Labor Foundation. For a copy of the program write to Dorothy P. Hill, Director, 22 Oakland Place, Buffalo, N. Y.

Pennsylvania Projects.—Bulletin No. 12, 1938, "New and Improved Services of the Department of Public Instruction," by Lester K. Ade, Superintendent of Public Instruction for Pennsylvania, gives evidence of a comprehensive plan comprising an acceptable educational philosophy, a carefully thought out program, and a clear conception of the type of organization and personnel required to bring the state-wide plan to full fruition. Through a systematic attack on the educational problems of the Commonwealth, a comprehensive and dynamic program has been placed in operation. Since the essential aspects of the Pennsylvania Plan have been enacted into law during the past few years, current projects of the Department of Public Instruction consist mainly in the enrichment and extension of educational services made possible through

the 141 new enactments of the General Assembly. Most comprehensive of these measures is the Merger Law which calls for the immediate merging of more than thirty districts having no teachers, and a systematic survey of approximately 1,400 districts with a view to developing more adequate attendance areas in administrative units.

Several other administrative services are in progress. The minimum school term has been extended to 180 days for all school districts, and the annual enumeration within school districts now includes alien and illiterate persons and youth up to eighteen years of age, as well as children from six to sixteen years.

Closely following the completion of approximately 250 new school building projects under the original P.W.A. plan, the Department of Public Instruction has launched a supplementary P.W.A. program of construction which calls for the development of 728 new building projects at an estimated cost of $92,000,000, which was under way by January, 1939. The development of these new projects entails thoroughgoing county planning with respect to school finances, transportation of pupils, architectural and landscape planning, modernization of the program of instruction and other essential phases of educational administration.

In the program of instruction, provision has been made for county supervisors of special education, audiometric testing of all pupils, and medical inspection on a wider scale. Vocational education has been made available on a county-wide basis, and the offerings have been enriched by the addition of distributive trades and the development of public service and technical institutes throughout the State. Adult education has been added to the regular school program. Graduation standards have been clarified and adapted to the modern philosophy of education. Local educational programs are being stimulated through the professional services of the fourteen State Teachers Colleges which are distributed at strategic points in the Commonwealth.

Standards of professional licensing have been improved. The annual State scholarship examinations for secondary school seniors have been modernized through the use of new type tests. A definite guidance program has been instituted in the interest of assisting candidates for the various professions supervised by the Department. A new laboratory offers testing facilities whereby citizens may be safeguarded against diluted and unsafe medicines. The educational requirements of candidates for barbering have been raised. The Department has also developed new curriculums for beauty culture schools in line with higher professional standards than heretofore.

The rising tide of teacher education in Pennsylvania has been stimulated through a four-year post-secondary school requirement for elementary teachers. An increasing number of teachers in service are qualifying for degrees and the number enrolled for summer sessions grew from 22,000 in 1936 to 23,000 in 1937. A new tenure law has been put into effect assuring competent teachers the privilege of continual service without depriving school boards of their power to dismiss incompetent teachers. The minimum salaries of teachers in the smallest districts have been increased to $1000 and sabbatical leave has been authorized for teachers.

A half-dozen new county library systems have been instituted and others are in process at the present time. Traveling libraries are increasing in number, and lantern slides are being made available to educational and social institutions at the rate of 20,000 a month.

A new movement in the field of history

has been initiated with a view to developing a wider use of local and State materials in the social studies program. The work of historical societies is being coördinated with that of the Department through publications, conferences, and visitations in the field. Several historical sites of prime importance in the Commonwealth have been reconstructed and made available as educational visitation centers for schools and the public generally.

Projects under the School Employes' Retirement System have assumed extraordinary proportions in Pennsylvania. Approximately $60,000,000 of State bonds have been purchased by the Board, thus assisting the Commonwealth in the development of its widespread building program throughout the State. Similarly, the sum of $20,000,000 has been invested in school districts and general improvement bonds, thereby enabling local school units and other political subdivisions to finance needed new construction. An outstanding activitiy of the Retirement Board is the continued successful administration of the largest retirement system in America, with a membership of 78,000, and reserve funds of $161,000,000.

The Department, with the comprehensive program moving forward on all fronts, is now turning its attention to the revision of the system of financing public education. It is anticipated that with the establishment of a more adequate financial structure for educational purposes, the present program may be further improved and new sectors opened on the educational frontier of Pennsylvania.

An attempt has been made to conduct coöperative research closely coördinated with agencies of both national and local character.

As a result of conferences sponsored by the United States Office of Education, the research program in Pennsylvania has been coördinated so that data gathered in this State are directly comparable with those in other states which have also coöperated in a unified program. Thus far the following revisions have been made in reporting systems in order to expedite the gathering of national school statistics on a comparable basis:

1. A complete revision of the School Attendance Register affecting every teacher and every child in the public schools of Pennsylvania.

2. The Superintendent's Annual Report has been revised eliminating those portions which overlap with reports gathered by other Bureaus. On the other hand, valuable information is included in the new form which is highly essential in determining Pennsylvania's future educational program.

A survey of the state departments of education in other states was made early in the biennium to ascertain the nature of the work being done in child accounting, statistics, and research in such departments. This information was sought for the purpose of gaining first-hand knowledge of the general character of this type of governmental service undertaken in other state departments of education.

Administrative officials in the public schools, including county superintendents, district superintendents, and supervising principals were given the opportunity to express their individual desires regarding the nature of the research program most helpful to them, the length of the studies desired, and the type of studies listed as most valuable in the field. These results were summarized and the program has been developed to conform to their desires. The majority of these officials expressed a keener interest in research studies of the small circular type with an occasional bulletin dealing with comprehensive studies in an intensive fashion.

The relationship between the graduate schools of the state-aided institutions and the Department of Public Instruction has always been most cordial, but no intensive effort was made to coördinate their respective research programs. From time to time minor efforts were made to develop a coördinated program, but without definite results. Recent efforts, however, have culminated in the formulation of a definite program that looks not only toward providing the Department with an opportunity for research work, but at the same time makes possible the capitalization of the best research developments of the respective institutions. The program has developed into three major phases:

1. Three hundred thesis titles suggested by various members of the Department of Public Instruction are being disseminated throughout the Commonwealth in the form of a research circular.

2. The records of the Department of Public Instruction are made available to those graduate students prosecuting research studies in the field of public education.

3. The research division is assuming responsibility for the summarization of major findings of research studies of current interest that are being undertaken at the four graduate schools.

Eugene P. Bertin, Editor for the Pennsylvania Department, is the authority for the point of view and facts summarized in this progress report.